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PREVENTIVE INOCULATION.*

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THE subject, which, with your kind permission, I intend to occupy your attention with this evening, is one which has made rapid strides of late years. Although it is not by any means a modern institution, yet is it only of late years that preventive inoculation has been brought prominently to the front, and received much attention. I am happy to say that now, thanks to the efforts of ardent investigators, pre-eminent amongst whom stands Pasteur, many diseases are under control, and may be successfully prevented by inoculation.

I am sorry to say that in this country the subject has not received the consideration which it merits; this, I think, is partly due to the fact that we do not suffer so much from those diseases which may be prevented by inoculation, as some countries; and partly to the Government of this country being a little behind the times in scientific matters, and preferring the good old-fashioned but barbarous method of wholesale slaughter, to any more modern scientific method, when dealing with a contagious disease.

Inoculation in its general sense simply means the introduction of some virus into the body, through a wound or abrasion on the skin or a mucous membrane, or by direct introduction into the circulation.

Protective Inoculation is the introduction of the specific virus, which may or may not be attenuated into the body, by means of which the disease is induced in a more or less mild

* An essay read before the Edinburgh Veterinary Medical Society.

form, and immunity against a virulent attack of that disease is gained for a certain period.

Vaccination is a term which is often used in the place of preventive inoculation, but, in its strict sense, it means the gaining of immunity against a disease by the introduction of the virus of an allied but milder disease, as in small-pox vaccination, in which the virus of cow-pox is introduced, immunity being obtained from small-pox.

The two terms are, however, used synonymously. Preventive inoculation is based on the observation that certain diseases never occur twice in the same individual, the first attack giving immunity against a second; this led to attempts being made to induce a mild attack of the disease, and thus to confer immunity against a severe attack, and ultimately led to the discovery of methods of attenuating the virus.

The length of time immunity is secured by inoculation, varies with different diseases; with small-pox it is supposed to be about seven years. We will now proceed to consider the question of immunity.

Immunity is either natural or acquired. Natural immunity is that exemption which certain tribes or species of animals have from certain diseases, *i.e.*, the immunity of cattle from glanders. Natural immunity may not only be of tribes, but also of individuals; it may also be partial, as is the case with Algerian sheep to anthrax, to which disease they only succumb after receiving large doses of the virus. Acquired immunity is a state of the body, in which certain changes have taken place, rendering it capable of resisting an attack of a certain disease. It may be due to a previous attack of the disease, as scarlet fever in man; to inoculation or vaccination, as small-pox in man and anthrax and pleuro-pneumonia in cattle; or to acclimatization, as, for instance, inhabitants of tropical countries are less susceptible to malarial fevers than strangers from a colder climate.

There are many theories advanced to explain the phenomena of immunity, but all of them are, in my opinion, more or less unsatisfactory. A careful consideration of each of them, however, would be, no doubt, interesting, and would bring out the arguments for and against each.

The first theory, which was advanced by Pasteur and Klebs, is called the exhaustion theory: this assumes that there exists in the body some substance necessary to the growth and development of each specific organism to which the animal is susceptible, and that in the course of this disease

this substance is exhausted, thus rendering the body unsuitable for the future development of the same organism until the substance has been replaced. In natural immunity, the substance necessary to the development of the organism of the disease to which the animal is immune, would be absent from the body at birth.

This theory has many objections; in the first place, think what a number of different chemical substances we must have in our bodies, one for each specific disease to which we are susceptible, each in sufficient quantity to allow of the development of an innumerable quantity of micro-organisms, and yet none of them discoverable by chemical analysis. Then again, if it be correct, we must assume that this chemical substance is developed in some manner by the cells of the body, and is being constantly produced in small quantities by them to make up for loss by excretion, &c., therefore, if it were all exhausted by one attack of a disease, it would scarcely take a whole lifetime—and some diseases give immunity for a lifetime—to again develop sufficient of the substance to allow of the growth of the organisms.

Klein, however, gives the best argument against this theory, when he shows that an infusion of the tissues of an animal dead of anthrax, forms a very good pabulum for the growth of anthrax bacilli; now if any chemical substance necessary for their growth had been exhausted, they would be incapable of further development in this infusion.

The next theory advanced, which at present is perhaps the most generally accepted one, known as the "antidote theory," was advanced by Chauveau and others. This theory assumes that the micro-organisms, during their development in the body, produce a substance which arrests their further development, and consequently immunity lasts as long as this substance exists in the body in sufficient quantity to prevent the growth of the specific organism. In natural immunity, of course, this substance would exist at birth. This theory is beautifully illustrated in the alcoholic fermentation of grape sugar; here the yeast plant develops in the sugar, multiplying rapidly and producing, as bye-products, CO_2 and alcohol. When, however, the alcohol reaches a certain strength, it inhibits the further development of the yeast, although the sugar, which is the food of the plant, is by no means exhausted. The same thing is assumed to take place during the course of a specific disease, and, in fact, it has been experimentally proved in the case of pneumonia in the human being, which is due to a micro-coccus. At first a

destructive poison, or ptomaine, is produced, which, acting on the body, occasions the symptoms of the disease; but if the tissues can resist the action of this poison for a certain time, then another ptomaine is produced, which is a curative one, and antagonises the other, at the same time inhibiting the growth of the organisms, and thus leading to recovery.

Dr. Billings also shows the presence of both a toxic and a prophylactic ptomaine in his attenuated swine-plague virus, which on being frozen for a few days, retains its toxic properties, but entirely loses its preventive property; thus showing that in this case the curative ptomaine is destroyed by freezing, whereas the toxic one is not.

But although we allow that two such substances are produced, yet because the curative ptomaine has the temporary effect of neutralising the other and destroying the micro-organisms in the body, it does not follow that this substance will remain in the body for an indefinite number of years in sufficient quantity to inhibit the growth of the same organism. In fact, it is not in accordance with our knowledge of physiology, that any substance would exist in the body for a number of years without being gradually removed and replaced again; and if this were so, then it would necessitate the tissues of the body acquiring some power of secreting this substance, to make up for waste; but if this were the case there would be a vital property acquired by the tissues, which is not included in this theory, and which would bring it much nearer to the next theory which I will describe shortly.

Then, again, it is natural to suppose that if a chemical substance existed in sufficient quantity to inhibit the growth of the organisms, it would be discoverable by analysis.

Again, the same argument applies here as in the former theory, viz., that the infusion of the tissues of an animal dead of anthrax forms a good pabulum for the growth of the bacilli; now if any inhibitory substance existed in the tissues, it should still be present in the infusion and have the same effect.

(To be continued.)

A CONTRIBUTION TO THE STUDY OF DISEASES OF THE NERVOUS SYSTEM.

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(*Continued from page* 327.)

Conclusions.—From the numerous clinical facts related, we believe we may make the following practical deductions:

The horse is liable to a purulent and infectious *cerebro-*

spinal meningitis, in every way identical with that of man, and which may be caused by a *diplococcus* or by some other bacterium. This character cannot be recognised in the malady described under this designation by Stockfleth, Liautard and others, seeing that one of its essential symptoms during life, the *fever*, is entirely absent, as well as the necroscopic lesions characteristic of meningitis, without taking into account the presence of a purulent exudate.

There is need to make the same reserve with regard to the cerebro-spinal meningitis of the ox, recorded by Vogel, Utz, Mayer, etc., a disease also apyretic, and generally marked, according to the reports, by exclusively paralytic symptoms, while the specific characters of the anatomical lesions are entirely absent.

In those cases in which veterinary surgeons observe serious nervous disturbance in the larger domestic animals, whether or not accompanied by digestive derangement, it is necessary to minutely examine the forage they consume, as well as the straw and litter. Attention should not only be paid to the presence of moulds—especially the *Penicillium glaucum*—but also to the ustilaginæ—the *Ustilago-carbo*, *U. longissima*, *Tilletia caries*, *lævis*, etc.,— and principally the uridinæ—the *Pucinia graminis*, *coronata*, *straminis*, etc. If the toxical properties of some ustilagines may be doubtful, it is not so with the *rust* of graminæ which affects all animals, attacking more particularly the central nervous system, and giving rise to symptoms not very unlike those of cerebro-spinal meningitis.

It must be noted that the presence of spores of the last-mentioned fungi are not always easily recognised, and that a simple macroscopical examination does not suffice; even in instances in which the microscope does not discover the existence of phyto-parasites, it is incumbent to experiment on small animals with the flour of the grain, as we have done with the meal of maize.

In the horse, the function of the *spinal cord*, commencing with its lumbar portion, is usually the first to be disturbed. The disease may extend to the anterior portion, and even to the medulla oblongata, but it rarely reaches the brain. In this species of animal are almost exclusively observed symptoms of paralysis unaccompanied by fever; the temperature is normal, and it even often descends as low as 37°Cent.

The same fungi which in the horse give rise to symptoms of medullary paralysis, cause in bovines disturbance in the *brain* and spinal cord, with excitement in the earlier stage—

psychical troubles and convulsions—syndromes which more especially characterise poisoning by the uridinæ.

The cerebral symptoms observed in the cow prove that, as also in the horse, the function of the nerve-centres is deranged either directly or indirectly under the influence of the toxic agent, or, in consequence of the decomposition of the blood, but that in no instance is the paralysis of a *myopathic* nature. Muscular degeneration may be considered as of a purely secondary nature.

With regard to the lesions met with in the meninges and the central nervous substance, they cannot be considered of an *inflammatory* character. The descriptions given demonstrate, at most, the existence of a passive congestion which may lead to effusion of serum; this is frequently sanguinolent, and is especially favoured by the alterations which have taken place in the blood.

Certain cases prove that the preparation of forage with water some time before it is given the animals to eat, favours the formation of toxic products originating under the influence of the fungi present.

It is not our intention to deny that outside the category of known infectious maladies—influenza, dourine (the *coition* disease), rabies, dog distemper, etc., simple pareses and paralysis of the spinal cord are not produced under the influence of microbes or the *matters they secrete*, just as the products of the bacilli of tetanus cause a hyperexcitability of the reflex centres. *On the contrary, we believe that we are able to confirm the fact with regard to one of the most wide-spread bacteria, the bacillus coli communis, which, when inoculated in certain conditions may, without invading the entire organism* (and so remain in a manner latent), *give rise by the toxines it produces to paralytic disturbances of the spinal cord* *

However, it is scarcely admissible that troubles of this kind arise spontaneously and simultaneously among a number of animals in the same establishment.

Our principal object is to bring before the practitioner the important part that certain fungi play in *enzootic* diseases of the nervous system in the larger domestic animals; and the numerous examples cited in support afford sufficient support to the statement.

The Regional Diagnosis of the Localised Cerebral Lesions.

The diseases of the brain comprise diffused and localised lesions, and the symptoms by which these different troubles

* We shall have occasion to return to this important question.

are betrayed may be likewise distinguished as *diffuse* and *focus* symptoms (the *Herdsymptomen* of the Germans).

Yet a perfectly localised lesion—such as a tumour, for example—may give rise to diffuse symptoms, as is usually seen in horses in which neoplasies are seated in the lateral ventricles. In other cases, a lesion—such as a *hæmorrhage*—is at first indicated by general symptoms, and finishes by producing certain focus symptoms (*symptomes de foyer*).

Any focus may, in the first instance, engender morbid symptoms as a consequence of destruction of more or less important nerve centres, the function of which is abolished, with resulting paralysis of the part invaded. According to Goltz, these symptoms are qualified as *destruction symptoms* (*Ausfallsymptome*). Every paralysis does not require destruction of the corresponding nerve centre; as it may happen that in a recent hæmorrhage the blood clot will exercise such an amount of pressure on the neighbouring organs, or so hinder the blood circulation in them, as to derange their function without doing them direct damage. The effused blood may undergo regressive changes to such a degree that the organs not directly involved will assume their normal function. Goltz qualifies these symptoms as *inhibition symptoms* (*Hemmungserscheinungen*).

A localised lesion may give rise to a local stimulation of the nerve elements involved, instead of abolishing their function.

Thanks to the progress achieved in the anatomy and physiology of the brain, and partly to the new methods of investigation, it has been possible in human medicine, in many cases of localised cerebral lesions, to form a tolerably precise regional diagnosis, and, consequently, to venture upon bold operations which have been crowned with a full measure of success. This diagnosis is based on an exact knowledge of the situation of the different centres, of the function of these, and of the course of the nerve fibres.

In veterinary surgery there are only some rare localised lesions of the brain the seat of which may be specially distinguished from those which are denoted by disturbance in motility.

Among these cerebral paralyses may be noticed in the first place:—

a. Alternating Hemiplegia and Paralysis.—Paralyses assuming this character are somewhat rare in the domestic animals. Nevertheless, we have been able to collect some instances in professional periodicals of different epochs, and to these we can add personal observations.

Carlo Ruini,* in his work on the anatomy and diseases of the horse, already mentioned, when treating of paralysis of cerebral origin, *hemiplegia* of the face and limbs, and admits that it is revealed on the side corresponding to the affected hemisphere.

Among the clinical observations of more recent date, and worthy of our attention, should first be cited a case published by Girard the younger.† A horse, aged seven years, suddenly fell down when in harness. On arrival at the Alfort Veterinary School, the animal carried its head, neck, and body to the left; the cornea of the left eye was ulcerated, white, and opaque; the lips and wings of the nostrils were deviated to the right; the left ear was paralysed, and the tongue was slightly deviated. When the ear, the eyelids, or the eye of the left side were lightly touched the animal manifested great sensibility. Mastication was performed with difficulty, the food accumulating between the molars and the left cheek. The pulse was hard and less prompt than in health. The left limbs showed great weakness, and movement was tottering and uncertain. The animal seldom, if ever, micturated, and erection of the penis was frequent. Finally, the horse fell, but made violent and ineffectual attempts to get up. It died on the seventh day. The only lesion discovered was a slight congestion in the left corpus striatum, pons varolii and substance of the cerebellum, chiefly on the left side. The spinal cord had a livid tint a little posterior to the cervical enlargement, and it was somewhat softened at the dorsal and lumbar enlargements.

In 1824, Olivier observed two cases of hemiplegia of the face and limbs of the left side, resulting from cerebral arachnoiditis.

Noges‡ states that an ox had paralysis of the left facial nerve, and during rumination the food escaped from that side of the mouth. It dragged the left fore limb along the ground, and this part had evidently lost its sensation, as in pricking the muscles of the fore arm with a needle or bistoury the animal did not exhibit any indication of pain. At the end of a month it had completely recovered.

Delwart makes mention of a horse eight years old, which was presented at the clinic of the Brussels Veterinary School in 1843. It had been found in the morning in such a state that it could not turn to the right. The limbs of that side

* Anatomia del Cavallo, Infirmita e suoi Rimedii, etc., Venice, 1598.
† Recueil de Méd. Vétérinaire, 1824, p. 296.
‡ Journal des Vétérinaires du Midi, 1838.

could scarcely sustain their share of the weight of the body, and the animal moved sideways, dragging the right legs along the ground. The same side of the face, including the ear and upper eyelid, was paralysed. The horse recovered after treatment with nux vomica.

Feuvrier* relates the case of a twelve years old mare which offered the following symptoms:—The right limbs could only be elevated with the greatest difficulty or scarcely at all, the fore leg hardly leaving the ground; the neck was contracted and deviated to the right, as well as the upper part of the head, while the end of the nose was inclined to the left, the lips, and particularly the lower one, inclining to the left; the ear of this side was quite limp. The animal's sensibility appeared to be intact. After four months' treatment the mare gradually recovered.

Wilmotte† treated a mare, eight years old, which for some days had diminished appetite or showed some amount of prostration. Then the left side limbs became stiff and could scarcely be moved, some of the food the animal masticated accumulated between the left cheek and the molars, and deglutition was difficult; the pulse was hard and frequent. The ears and lips did not present anything abnormal. In four weeks the animal recovered.

Putzeys‡ was requested to examine a four-years-old horse which on the previous evening appeared dull, ate without relish and more slowly than usual. The next day it was recumbent and could not rise. Putzeys gives the following symptoms:—The lower lip, and upper eyelid and ear of the left side, pendant, motionless, and insensible; after several ineffectual attempts to rise, the animal was able to get up with the assistance of some men. Then it was found that the left limbs were vacillating, and when compelled to move the horse dragged them and was on the point of tumbling down. When left to itself and much excited, it hesitated to move; progression was executed with difficulty and in an oblique manner. The pulse and respiration were very much accelerated and the conjunctivæ injected. In fifteen days the horse was able to resume work.

Trasbot§ observed in a horse, fifteen years old, symptoms of immobility and right hemiplegia. At its autopsy he found suppuration of the petrous temporal bone extending to its inner surface, inflammation of the arachnoid membrane covering the right lobe of the brain and the whole of the

* Journal de Lyon, 1847. † Annales de Méd Vétérinaire, 1865.
‡ Annales de Méd Vétérinaire, 1878. § Archives Vétérinaire d'Alfort.

cerebellum; serum in the lateral ventricles; inflammation of the cerebral and cerebellar plexus choroides; and compression of the left cerebellar peduncles.

Military Veterinary-Surgeon Henry* mentions his having met with an instance of right hemiplegia in a dog, but without giving any details of the symptoms, confining himself to stating that he treated it with strychnine, hyoscamine, etc., and that it was cured in seven days.

(To be continued.)

PARASITIC DISEASE IN THE COLONY OF QUEENSLAND.

In the early part of this year, Mr. Archibald Park, M.R.C.V.S., of Hobart, Tasmania, intimated to the Chief Inspector of Stock (Mr. P. R. Gordon) that he was desirous of obtaining by personal observation, information as to cattle diseases in the colony of Queensland, and asking whether Mr. Gordon would assist him in carrying out his object. Mr. Gordon thinking that Mr. Park would best attain his object by going into the country and making his observations on cattle on their own pastures, the Inspector of Stock communicated with Mr. G. Munro, of Boondooma, who courteously suggested that Mr. Park should make Boondooma the centre of his operations, and undertood to get his neighbours to collect any "wasters" in their herds for examination. Mr. Park has prepared a report of his investigations, which has been forwarded to the Colonial Secretary (Hon. H. Tozer). The report, which is dated Hobart, 1st August, is as follows:—

I was engaged from 22nd May until 4th July, and made sufficient observations and obtained morbid material to prove that there is very little tuberculosis on the Burnett, but there is a great deal of a disease which has been mistaken for it; I refer to the worm-tubercles caused by the Spiroptera reticulata.

I was detained fully a month, and consequently many specimens were lost on account of their bulk and difficulty in getting across country. However, sufficient has been saved to fully prove that the amount of tuberculosis in this district is not such as to create alarm; in every instance where tubercle bacilli are found, I find the Spiroptera reticulata has always invaded the tissue involved. You will observe that I have applied the term cystic in preference to tubercular tumours, as all the lesions are contained within a cyst, no

* Recueil de Méd Vétérinaire, 1884.

matter how small the nodule may be. They may coalesce and do so until a small number of nodules become as large as a skittle-pin, assuming much the same shape or lobulated like a kidney. They may be found in any part of the body, but always in connection with the lymphatic system. The duration of growth is at present uncertain; in some it appears rapid, and others several years apparently elapse; age is no guide or protection against invasion; 2 years old are as liable as 5, 6, or 10 years old.

Many of the cases were upon microscopical examination found to be affected with several diseases, such as actinomycosis, cystic tumours containing tubercle bacilli and dead spiroptera. In the adult and young stages of the parasite even the outline of the dead encapsuled embryo could be distinctly made out. On further examination of the pus, complete spirals of the adult parasite that had become calcareous could frequently be found. Having thus obtained a clue, I made cover-glass preparations by taking impressions from the pus and juice from the more vascular of the tumours. The latter were swarming with young spiroptera in every stage of development, the pus clearly showing similar forms in a more or less degenerated condition. On staining for tubercle bacilli the same reaction appeared in both, except that no tubercle bacilli were found amongst the young spiroptera, but a condition in the young parasites breaking up into fragments almost in some instances identical like tubercle bacilli, the encapsuled embryo would appear with methylene-blue exactly like a giant cell or a multinucleated cell when prepared fresh; but when kept in alcohol these conditions are not so well seen; they then resemble the degenerated fragments seen in pus. It is quite clear to me that we are dealing with a parasitic disease that is the primary cause of tuberculosis in Queensland cattle known as "lumpy throat," etc., etc., caused solely by this spiroptera reticulata.

Spiroptera reticulata has not been described by any authority as invading bovine tissue, and owing to difficulty of extracting a whole parasite in the adult stage I can only give an imperfect outline of it. About two inches is the greatest length I have been able to extract, and then the intestinal canal and oviducts are broken a considerable distance from the body of the parasite, which is armed with serrated edges along the body in some parts; striæ run alternately across the body a little beyond the median line, at another part run from side to side. These striæ are spiral, and would admit of the body expanding or contracting

considerably, and favour the twisting and winding the parasite seems to undergo in the lymphatic tissue. The oviducts appear to be two; one generally contains free embryos, the other encapsuled ones. These latter are extremely interesting, as the development can be seen going on very rapidly from the ova to the viviparous stage, when hundreds of these young embryos can be seen wriggling in the field of the microscope. They are extremely prolific, as many hundreds can be procured from a single drop of fluid. As already stated, the pus proves this fact by the amount of worm débris seen in it. How the parasite enters the body or the duration of life has not yet transpired; but it seems clear it must enter by the intestinal canal and find a nidus in the lymphatic glands and vessels. The most favourable position to find the live spiroptera is generally beneath the panniculus carnosus or the pectoralis muscle. In the throat and other parts the parasite is generally dead before attention is attracted, and then it is called tubercular or "lumpy." To enter into minute details of every case examined is not necessary, nor is it desirable in a report of this kind; it will be sufficient if I prove the facts as stated, that the tuberculosis of Queensland is so far only a secondary condition existing after invasion by the parasite above named. Accompanying this report are slides showing the spiroptera in all stages of development accompanied by tubercle bacilli in the degenerated tissues, "clearly showing that tubercle follows spiroptera, but spiroptera never follows tubercle"—a still further proof that some lesion must exist before tuberculosis can develop.

Let us now select a few of the more important cases to examine in detail, taking the numbers on the list appended.

Case 6.—A five-year-old cow in good condition presented an enormous mass of tumours from the parotid to the sternum, being in consistency from clear hydatid-like fluid to custard or porridge-like, and thick creamy pus; the lungs, liver, omentum, uterus, and intestines presented one mass of nodules. In fact, it could scarcely be possible to find an animal more tubercular looking. One might well condemn this animal for tuberculosis and feel perfectly justified in so doing. But there was something about this case that made me take cover-glass impressions from the custard-like pus as the cysts were opened. I find tubercle bacilli, but there are the fragments of dead spiroptera in every one of them prepared. This cow had never had a calf.

Case 10.—A cow 15 years old had a cystic tumour in the

throat and lungs. Contents of throat were clear watery in one, clay colour in another. The lungs showed fragments of spiroptera in the pus.

Case 26.—A bullock 5 years old, fat and fit for the butcher, had cystic tumours in the scrotum and sheath. At first sight it was impossible to distinguish whether this was tubercle or actinomycosis; a striking resemblance to both existed. But microscopically it proved to be cold abscesses with fragments of spiroptera in the pus. A similar condition existed in one lung, and live spiroptera were found beneath the pectoral muscles.

Case 33.—A pure-bred shorthorn bull, 9 years old, and used for stud purposes for six or seven years. This animal was known to make a roaring noise in his breathing for at least three years, and had been losing flesh for some time. A careful *post-mortem* revealed only one cystic tumour in the throat, lobulated or kidney-shaped. Two of the mesenteric glands had small caseous particles in the centre (nine years ago I found pentastoma produce similar lesion in a case of actinomycosis), the reticulum was adherent to the diaphragm from recent inflammation caused by swallowing four 2 in. nails and a piece of window glass. The actual cause of debility would ultimately have been from the foreign bodies alluded to, and not from the throat tumour. Slides and cover-glass preparations were made at time of slaughter, and stained for tubercle with affirmative result. Still this was not satisfactory until a complete series of slides had been made on my return to Hobart, when spiroptera and tubercle bacilli were found. [A slide from this case is forwarded.] In several small cysts on the sternum live spiroptera were found upon microscopic examination. It will be interesting to learn how many of his progeny are similarly affected. We will again refer to one or two of them.

Case 35.—Whatever doubt one may have held regarding tuberculosis, this case completely sets the matter at rest. A cow eight years old had cystic tumours on the sternum, ribs, lymphatic glands, omentum, mesentery, kidneys, intestines, and one deeply embedded between the muscles of the thigh, and the whole mammary gland might be said to be a mass of tubercular tissue. A slide with tubercular bacilli from the mammary gland is forwarded. See also photographs, skin studded with small abscesses, the under surface of the sternum, from which the two large abscesses on the left were removed, a small portion of kidney with encysted tumours, the intestines also containing similar nodules. All

these organs were examined in a fresh condition and stained for tubercle. The bacilli are present in small numbers, but the débris of spiroptera are abundant. From this case I obtained a beautiful spiral of the spiroptera perfectly calcareous among the pus from the small tumours shown in the photograph. If we admit these are tubercular tumours, then the cause is due to the destruction of tissue by the spiroptera reticulata, as they were constantly present in the pus.

Case 42.—A three-year-old heifer by the bull No. 33. This animal had a small cyst on the cheek. I opened it and found it contained the characteristic contents of the cystic tumours; washed it with a solution of bichloride of mercury and chloride of sodium, and filled the sac with chloride of sodium. In about a week scarcely any trace of the tumour could be seen. There was no evidence of the paternal throat tumour in this case, and it is utterly impossible that the sire could transmit this small cheek abscess from his throat tumour on the lines of heredity and remain dormant for years.

Case 71.—A six-year-old bullock, suffering from actinomycosis on the lower maxillary bone, an abscess below the ilium which broke as the animal threw his head back to the pelvis, striking it with the horn when shot; tumours with live spiroptera were found upon the brisket, &c. I would draw your attention to this case as being one of many in which a double or even triple affection was common, and the difficulty sometimes to determine which of them might be regarded as likely to prove most injurious to the animal, as the spiroptera and tubercle bacilli and actinomycosis were all present together with intestinal parasites.

Although there appears to be a large number of cattle affected with various diseases it must be borne in mind that this lot represents the culls from about 50,000 cattle and not from one station; also, the percentage of actinomycosis is low, not one in 3,000, whereas the tubercular is not one in 2,000, yet all may be said to suffer from parasites in some form or other, the warm, damp, swampy nature of this district favouring the development of parasitic life to such an extent that sheep have been completely driven out of certain parts of it; and now it is with difficulty the remaining flocks can be kept up for wool-producing purposes alone.

The remedy for this state of things cannot be brought about in a few days or weeks, but must be made a careful study for some time to come; one thing is certain, medical treatment is out of the question with cattle worth from 6s. to 7s. per head,

when affected with actinomycosis, and iodide of potassium at 25s. per lb., together with six weeks' drenching, with a wild animal. In the colony of Tasmania if no other complications exist except a simple actinomycotic tumour, free incision and dressing the part with common salt and a little Barbados tar over the external wound invariably produces excellent results; or even in bad cases, after a dressing of bichloride of mercury or arsenical ointment a slough takes place, and the result is sometimes surprising. The line whereby most benefit is likely to be derived would be systematic burning; supplying stock with salt, soda, sulphate of iron, and dry sulphur mixed. The condition of the digestive organs, filled with sand from the banks of creeks where cattle resort and devour the alkaline earth, clearly indicates the necessity for this remedy or one on similar lines. The flesh as human food of animals affected with actinomycosis was never interdicted until the members of the Stock Conference in 1889 recommended to the respective Governments that it should be so, on what grounds I have never been able to understand. There is not the slightest danger in eating the flesh of animals affected with actinomycosis, as the disease is generally of a local character, but should it be in the lungs or digestive organs its spread is more rapid, and the emaciation that follows prevents almost any chance of its being offered for sale as food. Yet I have seen meat so affected sold even in Brisbane in 1890. Still the infected parts can be removed and all danger obviated.

As regards the so-called tuberculosis tumours—or real if one chooses to accept it, although we have tumours of enormous size and in countless numbers, it is a fact that every one can be removed. From the fleshy parts of the carcase none of the tumours are ever found in the body of the muscles, but when situated in the fleshy part of the ham or thigh it is always between a group of muscles. The removal of the viscera completely removes all traces of the nodular lesions; so that, however expert one may be, if the animal is in good condition the carcase can be placed on the market, and I doubt whether any inspector could, without seeing the internal organs, offer an opinion adverse to its use for human food.

From the result of this investigation I am of opinion that no danger to human health would arise from the use of such flesh as food, provided all the affected parts are removed at time of slaughter and the animal is in good condition. With milk from the mammary glands so affected the case would be different; as this does not form the subject we have in view, I will leave this part for future consideration.

Editorial.

THE FIRST INTERNATIONAL VETERINARY CONGRESS OF THE UNITED STATES.

THE reports received of the proceedings of the International Veterinary Congress, held recently at Chicago, in October, agree in showing that it was a very successful business, and reflects great credit upon its organisers. No doubt, had it been possible to have held it during July or August, the attendance of European visitors would have been satisfactory, but October is beyond the holiday season, and finds everyone engaged in his usual occupation, from which a month's absence would be a serious affair. So that it is not to be wondered at that veterinary surgeons from Europe were conspicuous by their absence. The distance, too, was great at that season of the year, when the Atlantic is often in a boisterous mood; and, besides, there was the shadow of an International Congress next year at Berne, Switzerland, which will doubtless attract many visitors. An affair of this sort every year, or even in two successive years, is rather exacting.

However, our transatlantic colleagues appear to have mustered in large numbers, and to have attended the sittings or sessions with much assiduity. There were seven sessions, with an average attendance of 125 at each, the total number of representatives being about two hundred. The programme of business was extensive, too much so for the time allowed, but the quality of most of the papers presented was excellent, and we hope to be able to allude to some of them hereafter. The whole affair must be considered a marked success, from a professional and social point of view, and cannot fail to be productive of benefit in the future. Veterinary medicine is making rapid progress in America, thanks to the enthusiastic and indomitable spirit prevailing among its cultivators in that country, and the inauguration of this Congress is the best evidence that could be adduced of the truth of this statement. England is left behind in this respect.

CONVULSIONS OR ECLAMPSIA IN YOUNG DOGS.

M. MOUQUET, Veterinary Surgeon in Paris, draws attention in the *Recueil de Méd. Vétérinaire*, to what he terms eclampsia in young dogs, which, he says, is a morbid condition somewhat common in large towns. It is characterised by nervous symptoms, which may or may not be of an epileptiform character,

and apparently of reflex origin; the disease may manifest itself until the animals are two years old, and as it is often mistaken for rabies, Mouquet insists upon its differential symptoms. It appears to attack pet dogs most frequently.

Veterinary surgeons attribute eclampsia in the dog to dentition, or to irritation of the gastro-intestinal mucous membrane from worms or foreign substances; and while the author does not desire to underestimate the influence of these causes, he is of opinion that the existence of others cannot be denied, in view of the fact that the affection is observed in animals which have completed their dentition, and which have neither had catarrh of the digestive tract nor intestinal parasites. Distemper, which has also been blamed for it, does not often play any part in its etiology, the nervous troubles being developed as often before as after that contagious fever.

The first convulsive manifestations generally occur during the day, and very often in the street, the delight at getting out of doors seeming to act as a secondary occasional cause. None of the dog-owners whom Mouquet questioned had observed the first symptoms to commence at night, though many of these people had the dogs to sleep in their rooms. The number of bitches affected is perhaps somewhat greater than that of dogs.

Some types of the malady are described, though there is nothing really absolute in these, as it may well present itself in a hybrid nervous form.

In the *ordinary type*, the dog is in good condition, lively and bright; it goes out a promenade with its owner, and suddenly—often only a few paces from the dwelling—it, while wagging its tail, emits strident subdued cries, as if it had been wounded; if it is being led, it pulls on its chain, as if desirous to push forward, but if at liberty, it runs off more or less rapidly. Words, caresses or chastisement have no effect upon it, and saliva flowing from its mouth; it falls on its side in a fit of epilepsy of variable duration. It is generally at this initial period that the animal is taken to the nearest veterinary-surgeon, and then it shows the following symptoms:—

1. Salivation, an inconstant phenomenon. The saliva is filamentous or foamy;
2. More or less complete abolition of vision. The eye is fixed, and if the animal is placed in a room, it runs against tables, chairs, and the wall;
3. More or less complete abolition of hearing;
4. More or less complete loss of sensibility, or cutaneous hyperæsthesia, which causes the creature to be angry when the skin is touched;
5. More or less complete abolition of the intellectual faculties;
6. Tendency to go forward, and sometimes to go round in one direction in a large circle.

The fit may last for a few minutes to several hours.

Grinning Type.—In this the animal is suddenly attacked as in the other type, but the nervous phenomena are more especially localised in the head. The tendency to go forward may be replaced by a backward movement. The creature, after a few steps, sits or falls on its side, at the same time showing its teeth like a savage dog or grinning like a monkey, and then champing its jaws like an enraged monkey. The saliva flows in a limpid stream or is foamy, and the creature acts as if trying to catch a fly or some object near it. In one of Mouquet's patients which was attacked in this way, the fits lasted for from 60 to 120 seconds, and came on every ten minutes. The appetite is normal during the intervals.

Restless Type.—In this there are no epileptiform crises, nor cries, nor flow of saliva, but the dog appears to be constantly looking for something.

Hearing what is going on about it, it yet does not respond to its owner's calls, and runs from one room to another, taking care not to hurt itself against the furniture; no sooner has it reached one place than it starts off for another. In a case observed by Mouquet, the fit had lasted for three days. The animal swallowed fluids with difficulty, and could not ingest solids at all.

Furious Type.—In this type the animals are really restless. Seized with a kind of furious madness, jumping on tables and bed, upsetting chairs, running against doors and windows, and even breaking the panes in trying to get out. Mouquet has seen a dog in this state, trying to jump over the balcony on the fifth floor of a house. After these violent phenomena, the dog falls on the ground, having lost its mobility and sensibility, while the respiration becomes very hurried—in one case as many as 150 respirations per minute.

The diagnosis of this Eclampsia of young dogs is always easy in the first two forms; in the other two, the youth of the animal, the sound of its voice, and the rapidity with which the nervous phenomena appeared, may often differentiate it from rabies, but such cases should be carefully isolated so as to prevent their doing damage, as a mistake might entail serious consequences for the veterinary surgeon.

The Eclampsia of nursing bitches can scarcely be confounded with the malady just described; the condition of the mammæ, the tonic contractions of the limbs; the retention of the intellectual faculties, etc., aid in the differentiation. Mouquet, however, saw a case of "Nursing Eclampsia" in a bitch which never had young, but in which the lacteal secretion appeared two months after the manifestation of œstrum.

The treatment recommended by Mouquet is: Cold affusions to the head and syrup of chloroform, with the inhalation of anæsthetic vapours. This has given him the best results. The syrups of chloral, ether, or bromide of potassium are also useful. After the disappearance of the nervous phenomena, it is advantageous to administer a vermifuge and a purgative.

THE PARIS CONGRESS ON TUBERCULOSIS.

THE third session of the Congress for the Study of Tuberculosis was held at Paris on July 27th, and continued until August 2nd, under the presidency of Dr. Verneuil. Among the very numerous and interesting communications made to it during the course of the session, we think it would be useful to allude in a succinct manner to those which relate more particularly to tuberculosis in animals. The communications under this head more especially dealt with the respective parts played by heredity and contagion in the development of the disease, the diagnosis of the disorder by means of tuberculin; the prophylaxy of tuberculosis, and tuberculosis in the goat, dog and horse.

1. *The Respective Influences of Contagion and Heredity in the Development of Tuberculosis.*—With regard to bovine tuberculosis, Professor Nocard believes he is sufficiently justified by facts to consider heredity as having only an accessory and negligeable influence in the propagation of the disease, from a practical point of view. He asserts that all the slaughter-house inspectors are agreed that tuberculosis is exceedingly rare in calves. In the dairies where he has been able to test the presence of the malady by tuberculin injections, and in which the proportion of diseased cows sometimes reached as high as sixty to seventy per cent., it was always the adult animals that furnished the largest number, while the great majority of younger ones did not appear to be affected, though they were the progeny of tuberculous cows. Nocard was convinced, from his investigations, that contagion was brought about by prolonged and intimate contact, the simple community of atmosphere not being sufficient to produce infection. With eighteen calves from tuberculous cows, which were declared healthy nine months previously,

he repeated the tuberculin injections, but did not obtain the characteristic reaction in any of them.

Professor Degive gave some facts which completely confirm Nocard's statements. Of 410 animals which had been submitted to the usual injection of tuberculin, 183, or more than 45 per cent., had reacted in such a way as to indicate they were affected with tuberculosis. This injection was carried out in contaminated cowsheds, and in a certain number of these all the cattle—6, 7, 14 and 22 head—afforded the characteristic reaction of the malady.

These facts evidently prove to what an extent contagion preponderates in the genesis of tuberculosis, and how important it is to prevent this mode of dissemination if it is desired to stop the continual extension of the disease.

To those who see in heredity a cause of tuberculosis at least as important as contagion, it may be observed that heredity, properly considered, only constitutes one mode of contagion, in which may be included, besides those rare instances of direct transmission from the mother to the fœtus by the blood, those cases which are indirectly determined after birth by the germs contained in the milk of the mother, or in other secretions accidentally inspired or ingested.

2. *The Diagnosis of Tuberculosis.*—Many veterinary persons, and particularly Nocard, Siegen, Thomassen, and Degive, furnish a great number of facts which testify to the high value of tuberculin as a specific agent in revealing the existence of tuberculosis in animals.

It is true that in a certain number of instances an autopsy has not led to the discovery of the lesions which the action of the tuberculin had led these authorities to expect. But Nocard and Degive think that in these cases the lesions nevertheless existed, though in such a discrete or limited form, or in such an inaccessible situation, in the marrow of the bones, synervial membranes, lymphatic glands, as to escape the observation of the experts. Degive relates a case in which the tubercular lesions were so little marked, that on an ordinary or superficial examination they would have been passed unnoticed. Some very limited foci disseminated in the pulmonary lobes were only discovered after dividing the lungs into thin sections, and cutting into *apparently healthy* mesenteric glands has revealed the presence of some tubercular nodules. These instances show how very carefully *post-mortem* examinations should be conducted, before declaring that the carcases of animals are free from tubercular alterations.

Degive remarks that among the cattle which gave no reaction to the tuberculin, there was now and again one whose organism was invaded by numerous tubercular changes, and this fact proved that, in order to produce the necessary reaction, the animals should not be too weak and enfeebled. It would seem that for the animal economy as a whole, as for every special organ, the nutritive activity, and, therefore, the calorigenous power, demands for its maintenance a certain amount of force and a certain integrity of the nervous system. The marked exhaustion and nervous depression that serious generalisation of the tubercular alteration entails, deprive the organic elements of the degree of irritability necessary to react in an appreciable manner under the influence of tuberculin. It is fortunate that in such cases the existence of the disease is generally easy to establish by an ordinary clinical examination.

Notwithstanding the negative results just mentioned, and which are happily very rare, it is an undeniable fact that the use of tuberculin constitutes by far the best means for detecting the existence of tuberculosis in the domestic animals. Degive includes all these, for it is permissible to suppose that the reaction observed in bovines may be obtained in all the species susceptible of contracting the malady, by a simple proportioning ot the dose. With regard to this point, Degive reports the result he has recently obtained at the clinic of the Cureghem (Brussels) school by the injection of tuberculin into a draught-

mare aged six years, which for some time had been losing condition, had diminished appetite, showed less energy for work, and was affected with polyuria. Thinking it might be a case of internal glanders or tuberculosis in an insidious form, a first injection of tuberculin was given, followed by a second of mallein.

The injection of the tuberculin produced a hyperthermia of 2·4°, but the mallein gave no appreciable reaction. On making an autopsy of the animal, there was found generalised miliary tuberculosis in both lungs, as well as some disseminated tubercular lesions in the spleen and in some of the thoracic and abdominal lymphatic glands.

The reaction of tuberculin, according to Degive, is so certain and so specific in its characters that when it occurred in persons affected with leprosy or syphilis (Strauss), or in a cow suffering from pulmonary carcinoma (Trasbot), there was no reason to doubt that there were also slight unperceived tubercular lesions.

In six cows suspected of intestinal tuberculosis, Siegen has in four of them detected Koch's bacillus in the fæces. In examining the muco-purulent discharge from the vagina of two cows also suspected of suffering from uterine tuberculosis, in two of them he found Koch's bacillus, and the autopsy of the two animals fully confirmed the diagnosis.

3. *The Prophylaxis of Tuberculosis.*—After remarking on the gradual and continuous extension of tuberculosis in the human species as well as among animals, Nocard asserts that there is a very simple means of preventing this extension among animals—this is to prevent contagion by separating the healthy from the diseased, the former being placed in thoroughly disinfected dwellings.

The same authority also suggests that cattle which have reacted to the tuberculin might be carefully isolated, fattened, and then killed for food.

In admitting, objects Degive, though it is far from being always the case, that the owners of these animals could afford space for their isolation, how often has it happened that they will not fatten, or that having gained the desired condition, they are afterwards condemned because of the extensive tubercular lesions found in them? It has happened on many occasions that beasts in excellent condition, even first-class animals, as Nocard himself has witnessed, have been declared unfit for food because of generalised tuberculosis.

Matters being so, Degive argues that we cannot usefully recommend fattening, nor oppose a serious prophylaxis against the disease unless there is an official establishment for the sterilisation of all the flesh derived from tuberculous animals. This sterilisation may be easily effected, it seems, by means of a special apparatus similar to that of Rohrbeck which has been at work for the past two years in the Berlin abattoir, and which, it seems, acts in a most satisfactory manner. This apparatus of Rohrbeck serves for the sterilisation and cooking of flesh by means of steam. It consists of a double iron cylinder provided internally with rows of grating on which the meat is placed, and zinc buckets underneath to receive the juice that flows from it. It appears that the flesh cooked in this apparatus is very succulent, of a good colour, and has an agreeable taste and odour. The concentrated *bouillon* derived from it leaves nothing to be derived.

Nothing could be more easy, so says Degive, than the installation of apparatus of this kind in the abattoirs of large towns. They would serve for the sterilisation and cooking of the flesh of animals coming from everywhere, and received with this object without embargo of all the railways. Owing to the culinary utilisation of the flesh from tuberculous animals, the government and insurance societies might intervene to such an extent as to indemnify cattle owners sufficiently for the sacrifice of their condemned stock.

The *sterilisation of the flesh, and indemnification by the State and Cattle Insurance Companies.*—Such are, according to Degive, besides isolation and disinfection, the three principal economical measures to oppose to the very considerable ravages caused by bovine tuberculosis.

With regard to the prophylaxis of this disease, Nocard thinks that it is not necessary to exclude from use the milk of all the cows which show signs of tuberculosis. In his opinion, it would be sufficient to regulate its sale, and to sterilise it by heat.

Dr. Legay, of Little, points out the dangers attending the use of milk from tuberculous cows, notwithstanding the boiling which is usually practised in households. Experiment shows that incompletely sterilised milk may preserve bacilli, especially on its free surface, and on the sides of the vessels containing it.

Nocard is of opinion that it would be well if authorities everywhere would decide, as is done in Denmark, that no bovine should be allowed to compete at any fat stock show until it had successfully passed the tuberculin test.

4. *Tuberculosis in the Dog.*—Before Koch's discovery of the bacillus, tuberculosis had scarcely been noticed in the dog. The lesions of this disease often show, on microscopical examination, a great analogy to that of lobular pneumonia, to pleurisy, to chronic peritonitis, to carcinomatosis, and to lymphadenoma; and their real nature, therefore, remained unknown.

In less than three years Cadiot has collected forty observations of canine tuberculosis, which have furnished the materials for a very interesting synthetical study that he communicated to the Congress. Degive cited several facts which fully confirm Cadiot's views, concerning the frequency and characteristics of tuberculosis in the dog.

5. *Tuberculosis in the Goat.*—Cadiot, Gilbert and Roger relate a certain number of experiments that tend to establish the fact that the goat is far from being refractory to tuberculosis.

Siegen, Moulé and Weber cite facts which prove that the goat may be affected not only with experimental, but with spontaneous tuberculosis. From the cases observed by Siegen, it appears that the use of goat's milk in the raw state is not free from danger, and that there is good cause for submitting goats whose milk it is intended to give to patients or children, to the tuberculin test.

6. *Spontaneous Tuberculosis in the Horse.*—Cadiot, Gilbert, and Roger relate a case of equine tuberculosis essentially limited to the muscles and skin. This muscular tuberculosis was remarkable not only for its preponderance, but especially for the macroscopical and microscopical modifications it had produced in the tissue.

7. *Resolutions.*—At the termination of the discussion, the congress passed the following resolutions:—

1. That butchers' meat should not be offered for sale until it has been passed as healthy by a competent inspector, and that the inspection of meat should be made in villages as well as in towns;
2. That public schools should be provided with spittoons in sufficient number so as to prevent children spitting on the floors, and that instructions be addressed in this sense to the managers;
3. That there is reason to demand that every animal about to be exhibited at a show subventioned by the State shall have been previously submitted to the tuberculin test.
4. That the rectors and inspectors of the Academy follow the example of those of Bordeaux and Clermont, and invite the institutors to join in popularising prescriptions against the contagion of tuberculosis;

5. That dead bodies should undergo an absolute disinfection before burial;
6. That tuberculous persons should be collected in special hospitals in groups, according to the stage of disease, and all the fewer as the malady is more advanced; while as a transitory measure, the duration of which should be as brief as possible, the phthisical should be gathered in special halls, which ought to be disinfected by the procedures now in vogue;
7. That apparatus for the sterilisation of flesh from tuberculous animals be installed in abattoirs in order to allow of the utilisation of such flesh without any danger.

TUBERCULOSIS IN A TIGER.

THE *Revue Scientifique* announces that M. Viand, of Saigon, reports in the *Bulletin des Etudes Indo-Chinoises* an instance of tuberculosis in a caged tiger. The animal had been ill for some time, but the nature of the malady with which it was affected could not be diagnosed while it was alive. The symptoms were marked emaciation, loss of liveliness and energy, indifference and dulness, and great prostration; the expression had lost its usual ferocity; there was a dry, hacking cough, quickened jerking respiration, the appetite was capricious or lost, there was a yellowish diarrhœa, and decubitus was nearly constant.

The autopsy revealed the lesions of localised miliary tuberculosis of the lungs and liver. Death ensued in about twenty days after the first symptoms were observed.

THE DIAGNOSIS OF SPAVIN.

THERE are often observed lamenesses of the horse, says Herr Hohene, district veterinary snrgeon at Konitz, in the *Berliner Thierarztliche Wochenschrift*, involving the hind limbs which would appear to be due to disease of the hock, though this articulation does not present any external alteration. The spavin has not come out, it is usually said; and in these cases sometimes recovery to soundness occurs spontaneously, the lameness disappearing without leaving any trace of its having existed. Hohene mentions an instance of this in a horse which had been lame for nine months, and it was owing to the occurrence of this case that he was compelled to search elsewhere than in the hock for the causes of these obscure lamenesses.

Having noticed the development of an exostosis on the internal tuberosity at the upper extremity of the tibia of the horse in question, the tumour progressively attaining the dimensions of a hen's egg, he carefnlly examined every horse that subsequently appeared before him suspected of being lame in the hock. To his great astonishment, he found that in every instance the stifle joint was diseased at the same time as the hock, and often before it. Generally the internal tuberosity was first attacked, and it was only later that all the articular extremitiy was involved.

The diagnosis was difficult at the commencement and required a certain amount of practice; it necessitated a rigorous comparison of the lame with the unaffected limb. The region is sometimes a little hot to the touch, and in grasping the superior extremity of the tibia with the hand, so as to take its dimensions, and then compare it with the opposite side in the same manner, the part will be felt larger, the sensation of increased size being more particularly noticeable when the capsule of the articulation is manipulated by itself.

Hohene had only met with one horse in which this stifle lesion was not present coincidently with the hock trouble, and he comes to the conclusion

that spavin is a lameness due to complex causes, that the hock is not the only articulation involved, and that frequently it is the superior extremity of the tibia which is the first to be diseased,

THE MICROBIC ORIGIN OF SURGICAL PURULENT INFECTION.

PROFESSORS ARLOING AND CHANTRE have been studying the nature of surgical purulent infection, the chief problem which they set themselves to solve being the character of the germs which originate that serious condition, and if it requires a special pyogenic germ to produce it, or if the ordinary pus germs associated with those of septicæmia may tend to such a result; or even if the pyogenic agents may not acquire a special virulency which endows them with energy sufficient to cause pyæmia.

A careful study of the subject has led them to the following conclusions:—

1. Surgical purulent infection has for its essential agents the ordinary microbes of suppuration, which were the streptococcus in the case they had under observation;

2. If other microbes than these also often exist in lesions, they complicate purulent infection, but they are not necessary for its development;

3. To produce purulent infection, the streptococcus possesses the virulence it has acquired in the serious and acute forms of puerperal septicæmia, and not that which it exhibits in simple abscess and erysipelas;

4. There are etiological relations between surgical purulent infection, puerperal septicæmia and erysipelas, but it is not known where or how begins the transformation of the pathogenic properties of the streptococcus, which enable it to produce these diverse chemical states alternately.—*Comptes Rendus de l'Academie des Sciences de France.*

CATTLE DISEASE AT THE CAPE OF GOOD HOPE.

THE *Gazette* of November 11th publishes an Act which has been passed by the Parliament of Cape Colony to prevent the spread of contagious and infectious diseases amongst cattle and other animals; and it is announced that the Secretary of State for the Colonies has been requested by the Government of the Cape to direct public attention to the fourth section, which deals with animals brought to the colony from any place separated from it by the sea.

THE CATTLE PLAGUE IN SOUTH-EAST AND CENTRAL AFRICA

WE have on several occasions alluded to a serious bovine disease which has for some time been causing great havoc in South Central Africa, and which, from some descriptions, would appear to be the cattle plague of Asia and Southern Russia. Mr. Hutcheon, M.R.C.V.S., Colonial Veterinary Surgeon, Cape of Good Hope Colony, furnishes the following additional news of the disease, which is of much interest. He says the following extracts, taken from reports and letters received by the Colonial Government on the same subject, will be read with interest.

The Rev. A. Merensky writes under date 29th September, 1892:—"As far as I can see, this disease is the so-called cattle plague, in Germany it is called rinderpest; it appears to be more contagious and more deadly than lung-sickness. The disease made its appearance first some years ago amongst the cattle of the Masai tribe, which lives to the west of Lake Victoria Nyanza. From there it spread gradually towards the Kilimandsoharo and to the East Coast. I was told that in Zanzibar it has done very much harm. I myself have been told by the natives that even wild buffaloes were attacked by it and succumbed to it. In January of this present year the plague carried off the cattle of the warrior chief Merere, living to the east of Lake Kikwa, and in the

month of April it reached the shores of Lake Nyassa, about Karonga. When I came down the Lake in July last, we had on board of the steamer Donura, belonging to the African Lakes Company, some twenty head of cattle, all of which died during the voyage." (This looks like rinderpest.)

At an interview with the German Vice-Consul, who had been stationed at Zanzibar, he stated "that the disease—believed to be rinderpest—had been prevalent in the district around Zanzibar for over two years, and that at one time during that period there were no cattle to be had for several months, the inhabitants having to live on tinned meat."

And the Imperial German Consul-General, writing under date 7th February of this year, states that the Governor of German East Africa reported on the 9th December last, that great havoc has been done of late by cattle disease, and this not only on the shores of lakes Victoria and Nyassa, but also on the coast and generally throughout the intermediate parts of the country. It has not been possible to ascertain whether in all cases the disease to which the cattle succumbed has been one and the same. The Governor inclines to think that there were different kinds of disease. Those cases that have occurred near the coast have been submitted for investigation to the medical staff of the Government, and the results of this investigation have not given any proof of the existence of rinderpest.

It is satisfactory to note that "the matter has had the attention of the German Home Government, and that a Veterinary Commission is about to be sent out to East Africa to make a thorough investigation of the disease.

UTILITY OF BRAN IN DERMATOLOGY.

According to Professor Hoffmann of the Stuttgart Veterinary School, rubbings with bran may render valuable service in dermatology, and particularly in those cases in which wetting the skin is contra-indicated. In humid eczema, especially when affecting the dog, baths should not be employed, but rubbing with dry bran substituted for them in order to bring about that dryness, and particularly the cleanness so necessary for the skin. Grease affecting the horse's limbs, and also cracked heels, should be treated with bran in order to dry and clean the skin. In other cutaneous affections of the skin bran may also be most usefully employed.

The bran frictions are carried out as follows:—A plentiful quantity of bran is spread over the part to be cleansed and gently rubbed on by means of the hand. When the surface is humid, as much bran should be used as is necessary to absorb all the moisture and render the skin and hair quite dry. The particles of bran which remain after the rubbing ought to be removed by a soft brush.

If, on the other hand, the skin is dry and scaly from disease, the bran should be previously rendered damp with hot or cold water until it is of a pastey consistency. Oil, or better, glycerine, will also serve this purpose, but it requires a large quantity. The hair then assumes a healthy shining aspect, and the skin becomes supple and unctuous.

Sometimes Hoffmann mixes medicaments in powder, such as boracic acid, zinc oxide, salicylic acid, acetate of lead, etc., with the bran, and in certain cases he directly sprinkles over the diseased parts with these agents, then applies the bran, dry or damp bran, as the disease may indicate, by friction.—*Berliner Thierarztliche Wochenschrift.*

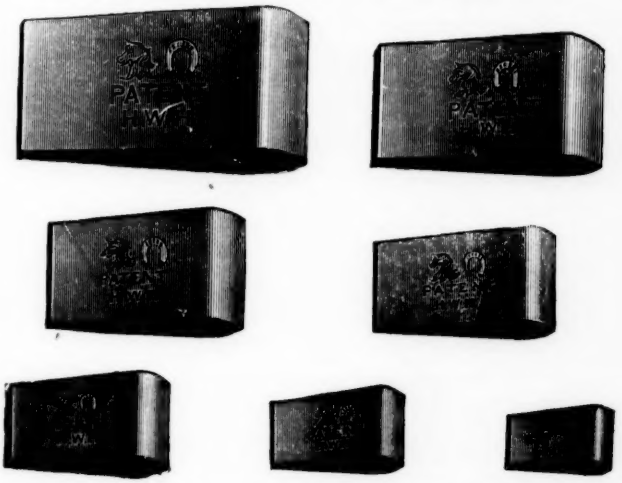
DISCREDITABLE PROSECUTION OF A VETERINARY SURGEON.

At Dorchester Assizes, on October 31st, before Mr. Justice Hawkins, Arthur John Blake, veterinary surgeon, of Wimborne, on bail, was charged with perjury. Mr. Bullen prosecuted for the Royal Society for the Prevention of

Cruelty to Animals; Mr. Charles Mathews defended. The defendant lives at Bournemouth. Last March a constable at Poole found a horse being used, as it was said, in an unfit state for work, and in consequence the Royal Society for the Prevention of Cruelty to Animals prosecuted one Curtis, in whose charge the horse was, before the Poole magistrates. At the hearing of the case the defendant, who had examined the horse, was called as a witness for Curtis. It was said that he then committed the perjury for which he was now being tried. It was not, however, until six months afterwards that these proceedings were instituted. At the end of the case for the prosecution, the jury intimated that they had heard enough, and returned a verdict of "Not guilty."

His Lordship commented most strongly on the practice of allowing a person in the position of the society's officer to appear as an advocate as well as a witness. It was, too, he said, absolutely incomprehensible to him that such a charge as this should have been allowed to hang over Mr. Blake for such a long time as six months. If it had really been thought that he was guilty, he should have been proceeded against immediately after the charge against Curtis had been dismissed in March.

IMPROVED ROUGHS FOR WINTER SHOEING.



HOOPER'S patent safety improved roughs differ from all other inventions, and by their formation ensure the most practical results. They consist of seven sizes, each most accurately graduated, as follows: for ponies, cobs, hacks, small carriage horses, large carriage horses, van horses and heavy dray horses. They are wedge-shaped, being tapered from the smallest or insertion end into the substance of the shoe to within the sixteenth of an inch of the foot surface, to allow for elevation from alteration to about four-fifths of its length, when it terminates in a conical shape, and where it is thickest to a sharp ground surface, which is its greatest width. The edges of the sides

are bevelled the whole length, so that one side of the flat surface is wider than the other, thus causing a sharp edge, which adds greatly to its retentive properties in the shoe, and as the punch holes are made oblong, the space caused by the bevel admits of the escape of any dirt that might not be picked out of the angles of the punch holes. The roughs can be inserted transversely, obliquely, or parallel, breadthwise in a line with the centre of the cover of the shoe at each heel, or, if necessary, one each side of the toe-nail. The roughs being plough-shaped from one end to the other, have a very powerful grip, and thus effectually prevent slipping and falling. They are durable and very inexpensive; their simplicity perfect. They are unequalled in travelling, under all conditions of weather, over all kinds of roads, especially asphalte, wooden, and macadamised. Instantly fixed and removed at will. Great retentive properties; having no shoulders they never break. Available for all kinds and sizes of horse-shoes, from the racing plate shoe to the larger dray horse. The only preparation required being punch holes (never reversed) from the ground surface through to the foot surface of the shoe, finished by the drift, which is the exact counterpart of the rough so far as it is to be inserted. Messrs. Arnold and Sons, of West Smithfield, London, are the sole agents.

"RELIANCE" TAIL-CUTTER AND DOCKING MACHINE COMBINED (Patented).

THE above drawing represents a new form of tail-cutter for squaring horses' tails, or it can be used as a docking machine. It has many advantages over

all existing patterns:—First, it has two curved blades, consisting of a number of small teeth, which prevent the hair or any other substance from slipping, as with the ordinary instrument. Second, when the blades are drawn together, the teeth are so arranged that on passing one another anything that may be between them is cut evenly and easily. Third, it does not drag like the ordinary shears, on account of the blades having teeth and being curved. Fourth, at the extreme end a nut fixes the two blades together; by this greater leverage is obtained, and therefore much easier for cutting.

It is without doubt the quickest, best, and cheapest, and most reliable instrument that has been brought before the notice of the profession, because it combines both docking-machine and tail-cutter. The patentees and makers are Arnold & Sons, of West Smithfield, London.

"PRIVATE VETERINARY SURGEONS" IN MADRAS.

It is currently reported that the Madras Government has at length decided upon the adoption of a Veterinary "policy"—save the mark!—but the details given are simply beyond belief. According to reports, the Government stipulates that it must not be called upon for financial assistance. The Superintendent of the Civil Veterinary Department with his present staff, which is little more than a name, is to have charge of a veterinary class at Saidapet. There he is to train up veterinary surgeons—not army men, but private individuals whose aim is to fit themselves for private practice. The absence of "cases" at Saidapet has been commented upon repeatedly. But though the "cases" available will afford the superintendent little opportunity to go beyond instructing pupils in the mysteries of galls and sores, he is expected to train up a number of veterinary surgeons. It is admitted by Government, we believe, that this will fully occupy his time. Nevertheless, he will also have to attend, as now, to work in the districts. The educational work will, of course, bring him under the orders of the Director of Public Instruction; as regards district work he will be subordinate to the Board of Revenue. He is thus expected to perform the difficult task of serving two masters, while the work to be done for one will fully occupy his time. Then as regards the veterinary surgeons whom he is to turn out in due course: it appears that the superintendent is to be allowed, if he pleases, to give six months' additional training to the thirteen stock inspectors already nominally attached to his department. These gentlemen apparently form the nucleus from which a supply of further veterinary surgeons is to be developed. Strangely enough, they have been regarded by veterinary authorities as below the standard of the subordinates who in the Bombay Presidency are known as veterinary assistants. With no better staff, no better appliances than have been available for the training of men of this stamp veterinary surgeons are to be turned out. There is as yet no *college* in India capable of turning out such surgeons, but, by order of the Government of Fort St. George, a *class* at Saidapet is to do it. Government may find this plan successful, though we do not think it likely. If Government really does succeed, we trust that it will at some future date convert the hospital dresser, or at least the apothecary, into a full-fledged army surgeon—even up to the grade of the mitrailleuse-titled Brigade-Surgeon-Lieutenant-Colonel—by some similar process to that now recommended for the turning out of veterinary surgeons from the Saidapet mould. It appears to us that the Saidapet veterinary surgeon will not be regarded by his English brethren as having a diploma of equal value with their own. But this will not affect the Madras Government much, for it will have supplied a long felt want, a want upon which it appears to have dilated with an approach to eloquence: it will have provided the Presidency with private "veterinary surgeons."—*Madras Times.*

THE NON-EXISTENCE OF BOVINE CONTAGIOUS PLEURO-PNEUMONIA IN THE UNITED STATES AND CANADA.

The International Veterinary Congress held at Chicago, U.S.A., last October, appears to have been a great success. From reports to hand it would seem that the meeting was fairly representative of the profession on the American Continent, though we have not yet learnt whether Europe sent any delegates. It was attended by about a hundred of the leading members of the veterinary profession in the United States and Canada, including Professor Liautard, Dean of the American Veterinary College, New York; Prof. Pierson, Dean of the Veterinary Department, Columbia University, Philadelphia; Prof. Osgood, of the Veterinary Department, Harvard University, Boston; Prof. Salmon, Dean of the National Veterinary College, Washington, and Chief of the

Bureau of Animal Industries, Washington; Prof. D. McEachran, Dean of the Faculty of Comparative Medicine and Veterinary Science, McGill University, and Chief Inspector of Stock for Canada; Prof. Welch, Pathologist of Johns Hopkins University, Baltimore; Prof. Baker, Chicago Veterinary College; Dr. Lyford, Minneapolis; Dr. Clement, Baltimore; Dr. Gadsden, Philadelphia; Dr. Bryden, Boston; Dr. Wyatt Johnston, Montreal, &c.

Among the numerous papers introduced and discussed was one by Mr. J. W. Gadsden, M.R.C.V.S., under the heading, "Has Pleuro-Pneumonia been Eradicated from the United States?" in which he adduced strong testimony, including his own personal fruitless searches for it on farms and places where cattle suspected by British inspectors of being diseased had been shipped from. He had no hesitation in saying that a huge blunder had been made by the British veterinary advisers of the Privy Council in London, not only in the case of the United States, but most glaringly so in the Canadian case, sentiments which were concurred in by all the speakers. Dr. McEachran, on being called on, gave a full statement of all that had been done by the Canadian Government to trace the disease, if it did exist, including a personal inspection but a few weeks ago made by himself of the Pilot Mound district of the Southern Manitoba, whence the single suspected ox out of a whole season's shipment came, and declared without hesitation that Canada, from ocean to ocean, was free from such disease, and, furthermore, that it never did exist except in cattle from Great Britain, and it got no further than the quarantine station, where it was promptly and effectually stamped out.

At the close of the discussion it was unanimously resolved that

"It is the opinion of this Veterinary Congress that cattle pleuro-pneumonia has been entirely eradicated from every part of the United States, and that the continuance of the embargo by Great Britain against United States cattle is unjust and unnecessary."

Also:

"That it is the unanimous opinion of this Congress that cattle pleuro-pneumonia does not exist, and never has existed, among Canadian cattle, and would recommend that the United States Government remove the restrictions upon Canadian cattle entering this country."

Dr. Salmon, Chief of the Bureau of Animal Industries, proposed an amendment, saying that he fully concurred in the resolution, but would suggest that the following be added:

"That the Canadian Government be recommended to remove the restrictions off United States cattle entering Canada."

With this amendment the resolutions passed unanimously.

Reviews.

LE CHIEN: RACES, HYGIÉNE ET MALADIES. (The Dog: Breeds, Hygiene, and Diseases.) By JOANNY PERTUS, Médecin Vétérinaire. (Paris: J. B. Baillière, 1893.)

This is the latest addition to the considerable number of books devoted to the management and diseases of the dog, and within a compass of 300 pages it gives, in a brief but explicit manner, pretty nearly everything of interest and utility pertaining to that favourite animal. The author passes in review the different kinds of dogs—breeds and varieties—indicating their relative value and usefulness, the chapter dealing with this being illustrated by 30 figures representing the principal types. Then follows a description of their "exterieur" and the means of ascertaining the age, the hygiene of feeding and housing, breeding and parturition. Afterwards comes the study of diseases—contagious maladies, distemper, rabies, tuberculosis, etc.; diseases of the

skin, wounds and burns, parasites, scabies, etc.; disorders of the respiratory, digestive, genito-urinary, and lactiferous systems; infirmities of the eyes and ears; accidents of different kinds, and surgical diseases. The work terminates with a study of dressings, bandages and sutures, the administration of medicines and a formulary. As has been said, the descriptions are clear and succinct, and the medical portion is well up to date. The book is neatly got up, is of handy size, and its low price, four francs (three shillings and four pence), is not the least of its recommendable features. To those who are engaged in canine practice it will be useful, and will at any rate show how far their treatment corresponds with that pursued by their French colleagues.

TRAITÉ DE L'AGE DES ANIMAUX DOMESTIQUES D'APRES LES DENTS ET LES PRODUCTIONS EPIDERMIQUES. (A Treatise on the Age of the Domestic Animals according to their Teeth and Epidermic Productions.) By CH. CORNEVIN and F. X. LESBRE, Professors at the Lyons Veterinary School. (Paris: J. Baillière et Fils, 1894.)

L'AGE DU CHEVAL ET DES PRINCIPAUX ANIMAUX DOMESTIQUES—ANE, MULET, BŒUF, MOUTON, CHÉVRE, CHIEN, PORC, OISEAUX DE BASSE-TOUR ET DE VOLIÉRE. (The Age of the Horse and the Principal Domestic Animals—Ass, Mule, Ox, Sheep, Goat, Dog, Pig, Poultry, and Cage Birds.) By M. MARCELIN DUPONT, Médécine Vétérinaire. Professor at the School of Practical Agriculture at Delhomme de Crezancy. (Paris: J. Baillière et Fils, 1893.)

It would appear that for a number of years the French Minister of War has appointed Special Commissions to inspect and classify all the horses and mules in France capable for Army service, so that they might be requisitioned in case of need. In order to facilitate these operations the owners of these animals are obliged to make a declaration every year as to the number they possess, as well as their distinguishing marks, any person making a false declaration being severely dealt with. Therefore it is, that a knowledge of the age of horses has become something of a pressing necessity, and has acquired a special interest and importance altogether unprecedented, so far as these animals are concerned. And if the acquirement of such knowledge does not require much time and does not form a very arduous task, it, nevertheless, demands considerable practice and close observation. To the young veterinary surgeon more particularly this knowledge is of the greatest moment; and though it is gained by practically studying the indications of age whenever an opportunity offers, yet before he can become proficient as an authority he is liable to make many mistakes. To aid him in obtaining information in regard to the age of animals, the experienced expert lends his aid, and furnishes the student with the result of his personal observations in the form of a book which will be a guide and reference.

In this way many works of more or less value have been produced, but we think very few, if any, of them equal, if they come near, the two treatises which have just been brought out in France. That by Professor Dupont is a kind of *vade mecum* in portable form, and we have certainly seen nothing better in this line on the subject, if the limited size (16 mo., 187 pp.) of the book is taken into account, and which admirably adapts it for the pocket. The description of the signs of age in the different species of domestic animals is evidently exact, and it is rendered more valuable and instructive by the insertion of no fewer than thirty-six plates, thirty of which are coloured in a very artistic manner. The book is marvellously cheap, being only five francs (four shillings and two-pence).

The second work before us is by two teachers at the Lyons Veterinary School, whose names are familiar to those who study general zootechny and veterinary anatomy. It is really a classical treatise on the age of the domestic

animals, and its completeness will be recognised when it is mentioned that it includes the buffalo and the dromedary or camel in its scope, as well as farmyard fowls, the turkey, peacock, guinea-fowl, pheasant, pigeon, and palmipedes. Great care has evidently been exercised by the two authors, for, as is stated, the work is not a compilation; thousands of animals had been examined by them during more than twenty years, with the object of studying the evolution of those changes produced by time which furnish the signs that indicate age, while hundreds of anatomical specimens were brought under observation, measured, scrutinised, drawn from, and otherwise laid under contribution with the same object in view. This will give some idea of the value of the work, which could only have been produced by scientific enthusiasts such as the authors are. It is a production of which the veterinary profession in France may well be proud, and adds another to them any important contributions made to science by the veterinary teachers of that country. Not only is the letter-press all that could be desired in conveying descriptions and expressing views, but the skill of a talented artist has been invoked to furnish more than two hundred figures which illustrate in a very satisfactory manner, what words do not so well present to the mind.

PRÉCIS DE TÉRATOLOGIE, ANOMALIES ET MONSTROSITIES CHEZ L'HOMME ET CHEZ LES ANIMAUX. (A Compendium of Teratology, or Anomalies and Monstrosities in Man and Animals.) By L. GUINARD, Professor at the Lyons Veterinary School.

LES ANOMALIES CHEZ L'HOMME ET LES MAMMIFFERES. (Anomalies in Mankind and Mammals). By LOUIS BLANC. Prosector at the Lyons Veterinary School. (Paris: J. B. Baillière et Fils, 1893).

Teratology, an important division of biology, is scarcely more than fifty years old, and yet it has made wonderful progress. First taken in had by Meckel and E. Geoffroy-Saint-Hilaire, and established on a solid foundation by I. Geoffroy-Saint-Hilaire, it has continued to make rapid strides through the studies of various French and German biologists, and especially Dr. Dareste. Though a most interesting section of biology, yet it perhaps pertains more to medicine and surgery, and it is certainly a subject which should be more especially under the notice of the surgeon and the veterinary surgeon, so far as its practical bearings are concerned, than under that of the biologist. Anomalies in the development of living beings have been recognised from the earliest times, but it was not until embryology was placed on a scientific basis that aberrations in organisations could be satisfactorily accounted for.

Teratology is really the science of monstrosities, and though it might be supposed that these modifications in evolution could be produced in limitless numbers, yet the observations of Dareste and others go to prove that this is not so, and that only a certain number of such modifications in the evolution or development of a living being *in utero* are possible; consequently there can only be a limited number of types of monstrosity.

The science of monstrosities comprises two objects, an enumeration of all the types of monsters, and the explanation of their mode of formation; and these divisions of the science have received different names, the first being designated *teratology* and the second, *tralogeny*.

The two works above enumerated deal more particularly with teratology, and it is satisfactory to find that they are written by members of the veterinary profession, and also that these belong to the Lyons School, which has produced so many authorities of the highest rank in every branch of veterinary science.

Teratology is now taught in the French schools, and we hope it will not be long before it is dealt with in the British Veterinary Schools. The subject has been greatly neglected, and perhaps the first and only attempt to

bring it into notice is to be found in Fleming's Veterinary Obstetrics, a knowledge of monstrosities being of more importance to the obstetrician than anybody else. Germany has long had an excellent monograph in Gurltz's splendid "Thierische Missgeburten," published in 1877, and it is to be hoped that we shall some day have a similar guide to these abnormal productions. In the meantime no better books of reference for those who read in French could be recommended than either of the little works before us. We would prefer that of Professor Guinard as being the more complete and explanatory though they both cover the same ground; indeed, we rather wonder at two books on the same subject, and arranged on the same plan, being issued from the same school by the same publishers. Human as well as animal monstrosties are described, and the illustrations are appropriate and good, while the price of the works brings them within the limits of the poorest purse.

ANIMAL CASTRATION, SPAYING AND AFTER-TREATMENT. By FARMER MILES Charleston, Illinois, U.S.A. (London: Krohne and Sesemann, 1891.)

Animal castration is one of the most common, as it is also one of the useful and important, operations in veterinary surgery. In the male animal, when the testicles are external, and accessible to the hand of the operator, there is little difficulty experienced in removing them, but when they have not descended into the scrotum it is a different matter, and requires much manipulative skill and an intimate knowledge of the anatomy of the region in which they are lodged to reach and excise them. Horses which have one, or both testicles concealed, are commonly known as "rigs," or (in the United States of America) "ridglings," and are most frequently troublesome and mischievous therefore of less value than those which are emasculated. It is only within comparatively recent times that attempts were made to reach these non-descended organs, and nothing was known of the operation in this country until the end of 1878, when the author of this book—Farmer Miles, as he styled and still styles himself—visited England, and successfully demonstrated his method of castrating rigs. These demonstrations were a revelation to those veterinary surgeons who witnessed him perform his operation; for the tact and skill with which he handled horses, the cool adroitness with which he searched for the missing testicles, even extending his search into the interior of the abdomen, and the alacrity he displayed in bringing them within reach of his ecraseur, were novel and unexpected, no less than startling. Though in some quarters he was looked upon as something of an impostor or quack, yet those who witnessed his performance, and understood the nature of the operation, knew better than to brand him as an empiric, and readily recognised in him a highly-skilled expert, such as they had rarely, if ever, met with. His instruction in the operation, which he gave to a number of veterinary surgeons in the three kingdoms, was highly appreciated, and elicited warm commendation; it has borne good fruit, as now there are members of the profession who undertake the castration of rigs, and are successful in the operation. Mr. Miles is not a veterinary surgeon, but an agriculturist who was driven by force of circumstances to play the part of an operator on animals. Observation, long experience, and boldness begotten by dissection, together with natural ability, conspired to make him the accomplished castrator he showed himself to be.

In the work he has published he describes, in characteristic fashion, his method of operating, and so clearly that anyone should be able to comprehend it. He treats not only of the castration of "rigs," but of other animals, male and female, and carefully draws up rules for thei subsequent treatment; illustrating his descriptions by a number of woodcuts. Consequently his book is a valuable contribution to the literature of veterinary surgery, and deserves high commendation as the work of one who is master of what he professes.

We must not omit to acknowledge the sympathetic terms in which he alludes to his visit to this country, and the friendly reception he received; the concluding passage in the book is as novel and startling in its way as was his *début* among us in England. It may be mentioned that the well-known veterinary instrument makers in London sell the book, also the special instruments which Mr. Miles employs in operating.

Army Veterinary Department.

Gazette, September 2nd.

ARTILLERY VOLUNTEERS.—First Lincolnshire, Western Division. Lieutenant J. Brodie Gresswell to be Captain.

Gazette, November 3rd.

NORTH SOMERSET YEOMANRY CAVALRY.—F. W. Leigh, Gent., to be Veterinary-Lieutenant.

Gazette, November 7th.

Veterinary-Major W. Burt is placed on retired pay. Veterinary-Major W. Walker, from half-pay, to be Veterinary-Major, vice W. Burt.

Gazette, November 14th.

ROYAL HORSE GUARDS.—Veterinary-Major J. Reilly to be Veterinary-Major vice I. Matthews, F.R.C.V.S., Army Veterinary Department. Veterinary Major I. Matthews, F.R.C.V.S., from Royal Horse Guards, to be Veterinary-Major for duty with the Remount Department.

It will be observed from the *Gazette* of September 2nd, that Mr. J. B. Gresswell, M.R.C.V.S., of South Lincolnshire, has been promoted to the rank of Captain (combatant rank) in the Volunteer Artillery. He also obtained his certificate as an efficient in the duties of a mounted officer at Newcastle Artillery Barracks last August.

Obituary.

THE death has been announced of Mr. Rusk, First Secretary of Agriculture of the United States, which took place on November 22nd, in Wisconsin. He was probably better known and more widely popular with the agricultural classes than any other American politician. It was largely through his efforts that the old Bureau of Agriculture was elevated to a full executive department, and in recognition of his work he was made the first Cabinet officer to represent agriculture in the council of the chief Executive. Born in 1830, he began to earn his own living as a stage driver when only 12 years of age. Having saved a few hundred dollars, in 1853 he decided to try his fortune as a farmer in the then extreme north-western state of Wisconsin. Nine years later the Civil War broke out, and, leaving his farm, he recruited the 25th Wisconsin Infantry Regiment, being chosen major, and continuing in service until the close of the war. In 1886 he was elected bank comptroller of the State of Wisconsin, and re-elected four times, afterwards serving two terms in the United States Congress. In 1881 he was appointed Minister to Paraguay and Uruguay by President Garfield, but declined to serve. In the same year he was elected Governor of the State of Wisconsin and was twice re-elected to that office. When, however, Congress raised the Bureau of Agriculture to a Cabinet portfolio, President Harrison, in response to a well-nigh universal demand, tendered the post to Governor Rusk, and he accepted it, his administration of that department making it a most important and useful aid to the large agricultural section of the Republic. To his initiative is largely due the

excellent work done in the investigation of certain animal diseases by the Bureau of Animal Industry, the publications of which, prepared by the eminent veterinarian, Dr. Salmon, form such an important feature in the agricultural and scientific literature of the United States.

Parliamentary Intelligence.

HOUSE OF COMMONS, November 8th.

THE OUTBREAK OF PLEURO-PNEUMONIA IN LONDON.

Sir A. ROLLIT asked the President of the Board of Agriculture whether it was with the knowledge and sanction of the Department that, in consequence of a single animal being found to be affected with pleuro-pneumonia in the Metropolitan Cattle Market at Islington on Monday last, the market was immediately closed, and the whole of the 600 or 700 cattle in the market and lairs were prevented from leaving; would he explain the necessity for taking the above step, and so inflicting serious loss and inconvenience on large numbers of people; and, in view of the fact that it had been known for some few weeks past that pleuro-pneumonia existed in several cow-sheds, would he explain why the removal of animals into the market was not prohibited except upon an order of the inspector.

Mr. GARDNER: On Monday last it was ascertained that an animal which had been exposed in the Metropolitan Cattle Market on that day had been suffering from pleuro-pneumonia in an advanced stage, and thereupon steps were taken to prevent the cattle in the market from leaving until a licence for their removal to a slaughter-house was obtained. This course was adopted in order to prevent the possibility of the spread of infection, and although I much regret that the necessity for it should have arisen, I feel bound to do everything in my power to prevent the recrudescence of a disease which we have done so much to try and stamp out. We are not aware of the fact to which the hon. gentleman refers in the concluding paragraph of his question, and if he has any information on the point we should be very glad to receive it.

Sir A. ROLLIT asked whether, in the opinion of the Board of Agriculture, pleuro-pneumonia, as distinguished from foot-and-mouth disease, could be spread unless the animals were in some enclosed place and not in the open air.

Mr. GARDNER: In our opinion pleuro-pneumonia can be spread by contact with a diseased animal. In this case it is exceedingly likely, in fact it is absolutely certain, that the animal had been in contact with some of the other animals in the market, and therefore it was necessary, in order to prevent the spread of the disease, to take the action I have indicated.

Sir A. ROLLIT: Is there any intention of closing the market?

Mr. GARDNER: No; as I stated yesterday, there is no intention of closing the market.

November 10th.

GLANDERS.

Sir F. SEAGER HUNT asked the President of the Board of Agriculture whether the partial enforcement of the Glanders Order Act, 1892, by the London County Council had resulted in reducing the disease called glanders in the metropolis; if not, whether he was prepared to make the provisions of Clause 19 compulsory.

Mr. GARDNER: I am happy to say that a considerable diminution in the number of horses reported to have been attacked with glanders in London has taken place since the order referred to came in force, the number being

1,837 in the 52 weeks ended the 14th ultimo, as compared with 2,478 in the corresponding period for 1891–2. My opinion with regard to the provisions of Article 19 remains unchanged, but I do not feel that under existing circumstances I should be justified in making those provisions compulsory.

November 16th.

ANTHRAX AMONG HORSES.

Mr. H. HOARE asked the President of the Board of Agriculture whether his attention had been called to the cases of anthrax that had appeared among Mr. T. W. Russell's horses at Litlington, in Cambridgeshire; whether he was aware that 600 tons of the very best manure, worth 6s. a ton, were ordered by the local authority to be disinfected by being well mixed with hot lime; whether, as that process had destroyed its manurial value, there were any funds available out of which some compensation could be paid for the loss inflicted on Mr. Russell by the action of the local authority; whether he was aware that, in addition, Mr. Russell had lost nine horses from anthrax; and whether, since in some of these cases their deaths might have been due to the action of the authority in closing the premises, there were any means by which some compensation might be paid to him for his loss as well as for the expense to which he was put by the closing of his premises.

Mr. GARDNER: I have been in communication with the local authority regarding this matter, and I am informed that on their becoming aware that anthrax had broken out on Mr. Russell's premises and that that gentleman had already lost nine horses from the disease, steps were at once taken to cleanse and disinfect the premises in pursuance of Article 11 of the Anthrax Order of 1892. It was necessary to treat some 400 tons or more of manure with quick-lime, but whether the result was the loss stated in the question I am not able to say. There is no reason to suppose that the deaths of the horses were in any way due to the action of the local authority, inasmuch as they occurred prior to such action being taken. With regard to the question of compensation, I have to say that, although I much regret that Mr. Russell should have suffered so severe a loss by reason of the outbreak of disease on his premises, there exists no power under the statute under which he could be awarded compensation, either for the animals dying of disease or for any loss occasioned by the cleansing and disinfection of the premises. I may add that, although the nine horses died at intervals between the end of March and the 27th of July, no notice was given to the local inspector until the 26th of July.

FOOT-AND-MOUTH DISEASE.

Mr. DARLING asked the President of the Board of Agriculture whether the Board had information to the effect that the cattle of Holland, Belgium, and Denmark were now free from foot-and-mouth disease; and whether it was now the intention of the Board to permit the import of animals from those countries, or either of them.

Mr. GARDNER: I am informed that Holland was declared free from foot-and-month disease so recently as the 26th of October last, and that the last remaining infected places in Denmark were declared free about seven weeks ago. The most recent information received by us as to Belgium showed that the disease still existed in two provinces of that country. In these circumstances, it would be premature on my part to allow the importation of live animals from the countries named to be resumed, and, moreover, as the hon. member is aware, the freedom of a country from disease at any particular moment is not the only factor which I have to take into account in determining whether such importation should be permitted. I may perhaps add that the circumstances attending the spread of the disease on the Continent, and in

the United Kingdom, during the past two years, have conclusively shown the necessity of very great caution on my part in dealing with proposals for the readmission of live animals from European countries.

Mr. DARLING asked what other circumstances the Board had to take into account besides the freedom of a country from disease at any particular moment.

Mr. GARDNER thought that the hon. member, who took so much interest in this subject, would have made himself acquainted with the Acts relating to it. Had he done so, he would have known what were the circumstances referred to.

Mr. DARLING, observing that there were many people more ignorant than he was about this subject, asked the right hon. gentleman to give the information for which he had asked in order that they might be enlightened.

Mr. GARDNER explained that it was necessary that the Board, before permitting the importation of animals, should take into consideration, besides the freedom of a country from disease, the conditions under which the sanitary regulations relating to animals were carried out in that country, and the conditions of communication between that country and other places which might be infected.

November 21st.

PRECAUTIONS AGAINST PLEURO-PNEUMONIA.

Mr. LOUGH asked the President of the Board of Agriculture whether he had yet come to any conclusion as to the desirability of imposing restrictions on the movement of cattle from the London cowsheds.

Mr. GARDNER: Yes, sir; I propose to issue orders regulating the movement of cattle and carcases out of registered cowsheds in the City and County of London, and also the movement of cattle into, out of, and within certain parishes in the county of Middlesex. I much regret that this course should have become necessary, but I hope by its adoption to prevent any increase of pleuro-pneumonia in and near London, and thus obviate the necessity of taking more stringent measures at this season of the year. The orders will come into force on the 27th inst.

November 24th.

THE BOVINE TUBERCULOSIS COMMISSION.

Mr. FIELD asked the President of the Local Government Board when the report of the Bovine Tuberculosis Commissioners might be expected.

Mr. H. FOWLER: I have made inquiry, and am informed by the Commissioners that the whole of the experimental investigations are concluded, that the reports of two of the Sub-Commissioners are printed, and that the report of the third Sub-Commissioner will probably be finished in a few days. Immediately on its completion the Commission will meet to draft the final report, which it is confidently expected will be issued next month.

Proceedings of the Royal College of Veterinary Surgeons and Veterinary Medical Societies, etc.

ROYAL COLLEGE OF VETERINARY SURGEONS.

SPECIAL MEETING OF COUNCIL HELD NOVEMBER 1st.

F. W. WRAGG, Esq., President, in the chair.

Present:—General Sir F. Fitzwygram; Professors Penberthy, McFadyean, Shave, W. A. Edgar; Veterinary-Lieut.-Colonel Oliphant; Veterinary Captain Raymond; Messrs. Elphick, Hartley, Hunting, Mason, Mulvey, J. F.

Simpson, Trigger, Wheatley, Mr. Thatcher (Solicitor), and Mr. A. W. Hill (Secretary).

Letters of apology for non-attendance were received from Professors Walley and Williams; Messrs. Faulkner, Kidd, Merrick, Nisbet, Thompson, and Peele.

Mr. W. J. MULVEY moved the confirmation of the following alteration in the Bye-law:—"That no student shall be eligible for the first examination until he has attended one session of not less than thirty weeks, exclusive of holidays, at the same college or school."

Mr. J. F. SIMPSON seconded the motion, which was agreed to.

Mr. HUNTING said that the carrying of the motion was simply nonsense. It was one of three alterations, all of which depended upon each other, and the other two had not been carried.

Professor PENBERTHY moved the confirmation of the following resolution:—"That Bye-law 39 be suspended for six months for the purpose of election of examiners for the Fellowship degree."

Mr. MASON seconded the motion, which was agreed to.

This concluded the business of the special meeting.

An ordinary meeting of Council was then held.

The SECRETARY announced that, having made an application for the use of the examination hall on the Embankment for the purpose of the December examination, he had been informed that the hall had been engaged by the Government for the whole of the week commencing Monday, the 11th December.

Mr. MULVEY said that seeing it was almost impossible to put off the written examination, he would move that it be left in the hands of the President and Secretary to engage a hall suitable for the purpose.

Mr. LAWSON seconded the motion, which was agreed to.

Election of Examiners for the Fellowship Degree.

Mr. MULVEY asked the President in what way he intended the election to take place. There were three distinct subjects. Was it proposed to elect one examiner for each subject, or to elect them *en bloc?*

Mr. TRIGGER suggested that the examiners should first be elected, and then be fitted to the posts.

Mr. HUNTING hoped that that method would not be adopted. If they elected the three men *en bloc*, and happened to have a round man among them, he must be put into a square hole, and if no one was elected who was fit to examine in bacteriology, how were they going to manage then? Surely they were not going to elect their three men on the same kind of principle as the Chinese adopted in appointing admirals and engineers, by examining them in a course of Confucius.

Mr. J. F. SIMPSON said that no proposition of the kind had been made.

The PRESIDENT said that there was a difficulty in the matter, inasmuch as the agenda paper did not state that examiners should be elected for particular subjects.

Mr. HUNTING said it was not for the agenda paper to state the method in which they should proceed.

Professor MCFADYEAN said the examiners had not been nominated for any particular subject, and therefore it must be assumed that they were fit for anything. He moved—"That the examiners be elected *en bloc*."

Mr. TRIGGER seconded the motion.

Veterinary-Captain RAYMOND moved as an amendment—"That the examiners be elected, one for veterinary medicine and surgery, one for veterinary hygiene and sanitary science, and one for pathology and bacteriology."

Mr. TRIGGER asked how they were going to manage with regard to the thesis.

Mr. HUNTING said that it was provided for in the rules. The candidate had to undergo an examination before the three examiners on his thesis.

Mr. SIMPSON seconded the amendment, which was put to the meeting, seven voting for it and seven against.

The PRESIDENT said he should decide in favour of the election *en bloc.*

The names of the nominees were then read as follows:

James Macqueen, F.R.C.V.S., nominated by W. A. Edgar.
W. Duguid, F.R.C.V.S., nominated by W. A. Edgar and J. F. Simpson.
G. Fleming, F.R.C.V.S., nominated by J. F. Simpson.
J. Woodroffe Hill, F.R.C.V.S., nominated by J. W. Axe and J. Roalfe Cox.
J. W. Axe, M.R.C.V.S., nominated by W. J. Mulvey.
F. Smith, F.I.C., F.R.C.V.S., A.V.D., nominated by W. J. Mulvey.
W. Pritchard, F.C.S., M.R.C.V.S., nominated by J. Roalfe Cox.
Finlay Dun, F.R.C.V.S., nominated by J. A. Dollar.
J. Roalfe Cox, F.R.C.V.S., nominated by W. Hunting.

Mr. HUNTING withdrew his nomination of Mr. J. Roalfe Cox.

The ballot was then taken, and

The PRESIDENT declared that Messrs. Duguid, Macqueen, and Fleming were elected.

Mr. HUNTING asked if the subjects were not to be allotted to the examiners.

Professor MCFADYEAN moved—"That the Council appoint the examiners to define positions on the Board."

Mr. TRIGGER seconded the motion, which was agreed to.

Professor MCFADYEAN moved—"That Professor Duguid be appointed examiner of Pathology and Bacteriology."

Veterinary-Captain RAYMOND seconded the motion.

Mr. J. F. SIMPSON proposed that Professor Macqueen be appointed.

Mr. HUNTING proposed that Dr. Fleming be appointed, but afterwards withdrew his nomination.

The ballot was then taken, and Professor Duguid was declared elected by fourteen votes to one.

Professor PENBERTHY proposed Professor Macqueen as examiner for Veterinary Medicine and Surgery.

Mr. J. F. SIMPSON seconded the motion, which was agreed to.

Mr. J. F. SIMPSON proposed Dr. Fleming as examiner for Veterinary Hygiene and Sanitary Science.

Mr. TRIGGER seconded the motion, which was agreed to.

Date of Fellowship Examination.

Mr. MULVEY proposed the date be fixed for Thursday, December 7th.

Mr J. F. SIMPSON seconded the motion, which was agreed to.

Registration Committee.

On the motion of Mr. Simpson, seconded by Mr. Trigger, the seal of the Council was affixed to the recommendation for the prosecution of a man whose case had been before the committee.

On the motion of Mr. Lawson, a vote of thanks was passed to the President for his conduct in the chair, and the Council adjourned.

ROYAL VETERINARY COLLEGE.*

IN the presence of a goodly number of visitors, together with the full staff of professors and a large muster of students, the Winter Session in connection with this Institution waa opened on Wednesday, October 4th, the inaugural

* We regret this report did not reach us until too late for insertion in last month's issue.

address being delivered by Professor Brown, C.B., the Principal of the College.

Occasion was also taken to present the prizes gained by the successful competitors at the midsummer examination. The proceedings, which were marked with much enthusiasm throughout, took place in the theatre of the Institution, presided over by Mr. J. Astley Bloxam, F.R.C.S.

Among those present were:—Sir Henry Simpson, J.P.; Professors Axe, Bayne, Crookshank, M.B., Macqueen, McFadyean, Penberthy, Power, F.R.C.S., Pritchard, Shave, and Simonds, J.P.; Veterinary-Colonel Walters; Veterinary-Majors Glover, Hammond, Matthews, and Walker; Veterinary-Captains Blenkinsop, Longhurst, Raymond, and F. Smith; Messrs. Burt, Roalfe Cox, T. Dollar, J. Dollar, W. Dollar, Leopold Hudson, F.R.S., W. Hunting, W. J. Mulvey, J. F. Simpson, Geo. Thatcher, W. Wilson, W. Woods, F. Wragg, and many others.

The CHAIRMAN, who on rising was received with loud cheers, said:—Gentlemen, we are assembled here to-day to inaugurate the winter season of the College; and I am sure you will all be pleased to listen to what Professor Brown has to say to you; and, without further preface, I now call upon him to deliver his inaugural address.

Professor BROWN, C.B., Principal of the College, who was received with loud and prolonged cheering, said:—Looking at the audience now assembled, I recognise a record of the past and present of veterinary science and suggestions for its future. There are here men who have grown grey in the service of the profession; there are those who are now in the midst of the battle of life; and there are some who are about to enter the ranks; and I ask myself: How am I to address them? I do not for one moment propose to adopt the *role* of the teacher. I shall not weary you by an abstract discussion on the life-history of the bacillus of tuberculosis, or the character of inhibitive principles in the blood serum of the rat; but I shall ask those who have spent three or four decades in the work of veterinary science to come back with me for a short time into the regions of the half-forgotten past—to our own student days, and we shall remember that the time which was occupied in our studies then was not irksome as to length. Two sessions of six months each were considered to be sufficient to qualify the candidate for the examination for his diploma, and if you are disposed to quarrel with that condition of things, and to think with pride of the greater advantages which you now possess, it may possibly soften the severity of your criticism if I recall to your memories the historic names of some who have distinguished themselves in veterinary science—Simonds, Morton, Percival, Turner, Field, *et hoc genus omne*, who studied under that system and passed into the profession at that time, and who made a reputation which still survives. Yes, gentlemen, there were giants even in those days—men of stern purpose and inflexible will, men who when they saw the avenue to learning blocked struck the barriers down; who did not ask that the road should be made smooth to them, but themselves carved a pathway to the sacred seat, and said, "Approach, and fear not." In those days we have to admit—and we do it ungrudgingly—our indebtedness to the medical profession. The higher education in the medical schools attracted some of our most earnest students; and it is common justice to say they were always welcomed by the teachers, whose classes were invariably thrown open to those who desired knowledge.

As time moved on the progress of science necessitated changes in the course of study at the College. The discovery of the anthrax bacillus by Pollender was a notable event which started a new era of science. By that discovery he sowed the germ of the science of bacteriology. It is true that the seedling grew at first in a somewhat erratic manner, breaking out here and there with quite unlooked-for blossoms, and bearing unexpected fruit;

and although in the course of years it has been pruned very much, even now it requires to be very carefully dealt with; the tyro, indeed, had better not meddle with it thoughtlessly. Doubtless the plant is destined to become a noble tree, but it yet requires a great deal of careful tending.

Then later on an outbreak of the cattle-plague gave to the veterinary profession a new importance, and forced it through a totally new experience. A Government Veterinary Department was formed, and it gradually came to be recognised that there might be something even more important than the cure of disease, viz., its prevention. Veterinary surgeons were compelled to realise the fact that under certain conditions it might be desirable not to attempt the cure of the patients, but rather to kill them in order to save the lives of many thousands of their fellows. Under these new conditions the study of sanitary science received a fresh impetus, and the veterinary art, urged on by the *vis-a-tergo*, has made during the last twenty years unexampled progress.

At this moment at this College there are all the appliances which modern science can offer and all the departments of your studies are in the charge of competent teachers. A chair of comparative pathology and bacteriology has been established by the aid of a liberal grant from the Royal Agricultural Society, who in former years assisted in founding a chair of Cattle pathology, to which Professor Simonds was appointed more than half a century ago. Then we have the important subjects of veterinary medicine and veterinary surgery, anatomy, histology, physiology, chemistry, botany, and recently there has been added a chair of materia medica, therapeutics, and hygiene. Your instructors are men of high reputation who are always anxious to impart knowledge, and who are never more gratified than in answering questions of inquiring students.

Now I have to say a word to those who have not yet borne "the labour and heat of the day," but who are in the middle of manhood, strong and active to work. To them I would point out that one result of the advance in the system of education and the progress of science has been the equable distribution of veterinary knowledge and the general elevation of the status of the profession. You are no longer called upon to look up, as you were in the earlier days, to one or two men of mark, but you can point to a body of earnest and competent men whose motto is "work and learn."

In association with the word work there occurs naturally the word play. You all know the old saying, "All work and no play makes Jack a dull boy." There are very many curious ideas suggested in old sayings, but this is the oddest of them all. To my mind the proverb is entirely mythical; indeed, I have a strong impression that it was originated by Jack himself, who was most probably an obscure individual whom no one ever saw. We may suppose he passed his life in contented idleness, and probably never did more than write down the maxim which I have just quoted. But in truth no one ever knew a dull boy who had been made dull in consequence of incessant work. I am happy to say that during the whole of my experience in this institution, from my student days to the present moment, I have only met with some few persons who had apparently adopted Jack's view of life, and illustrated it in practice. But if my memory serves me rightly they began by being dull boys, and never tried the experiment of work without play to see if it would make them any duller. Do not be alarmed about that proverb. You may dismiss it calmly from your minds and work on fearlessly.

To you hard workers I say holidays are necessary. Of course you understand clearly what the word means. It seems almost unnecessary to question you, but the cheers with which my suggestion was greeted suggests to me that you may not quite comprehend the full meaning of the term. In common use the word is always wrongly spelt. If you look in your dictionaries you will find the word holiday is composed of two words, the first of which ends

with a "y." Holiday is, in fact, a holyday, a day set apart for some sacred purpose. It need not be devoted exclusively to going to church. There are many purposes which deserve to be called sacred; and when jaded students set apart a day or a period to recruit their exhausted energies and restore their nervous system to its proper tone, they are fulfilling the intention of the word; but unless each one can say "I have had a holiday or holy period, and I have spent it in such a way that I am decidedly in mind and body better for," then it would be as well for him if he had gone on with his work and had no holiday at all. It is not denied that some relaxation from mental or physical labour is necessary, but I want to get rid, if I possibly can, of the impression which seems to be growing in the public mind, that holidays are the most important of all institutions. The question too often is at the present day, not how much work a man can do, but how many holidays he can afford to take.

I have spoken of the advance of our profession in recent times. but I do not believe that we have yet advanced so far that we can afford to rest too long upon our oars without risking the loss of what we have already gained, and perhaps falling into that lethargy of forgetfulness, out of which it is almost impossible to emerge. In short, gentlemen, there is enough before you to occupy your time pleasantly; and with all the subjects in all their variety which each new day engages your intention, I do not think as a rule you will find your work at all enervating in its influence; and if you limit your holiday occupations to those which I have suggested, always having some beneficent purpose in view, it is not at all improbable that you will find you do not require quite so many as you have hitherto considered to be necessary.

To those aspirants to veterinary honours who are about to enter into the ranks I now address myself. You will not only find work to do, but profoundest subjects for thought. You begin, indeed, by an introduction to the mysteries of life and death. You are introduced at once to the world of living animals and plants, and you inquire, because you cannot help it, as to the origin of life. You see its manifestation in its most elementary form under the microscope—the simplicity of organism associated with wonderful perfection of function, power of reparation, which often far exceeds that belonging to the more complex beings; you see also the negation of life or death. The ancients, as you know, held the view that life was an entity, something added to matter. The modern scientist looks upon that theory as an insult to his intellect and repels it. In l is view "life is not an entity." In place of the vital principle of Aristotle as a cause of life, it is now affirmed by our modern scientists that it is the outcome of the correspondence of the organism with its environments, and if there were no changes in the environment, but such as the organism had corresponding and adaptive changes to meet, there would be eternal correspondence and eternal life.

This may be true, but it does not seem to add very much to our knowledge of the subject. It seems to come to very much the same thing whether we adopt the vital principle of Aristotle or the correspondence with the environment. But whether life is the cause or effect of organisations, you will find it difficult to free your minds from the idea that it is something. An animal has life, and you can destroy that life, and cannot bring it back. You investigate the minute textures of the organism by the aid of your own vision and by optical instruments, and you advance with your studies, adding day by day new facts to your experience; you do your best to aid the progress of the veterinary profession, of which you hope to become worthy members. I began this address by taking you forty years back. Now let me for a moment go forty years on, to the time when someone will stand here in my place and talk to you of this day or of this period, as I have been talking to you of a period some forty years behind us. The speaker in the future may then be

able to refer to the advance which has been made during the forty years of his past, incomparably greater than the advance to which I have referred the forty years of my past. He may point to a profession standing erect, firm, and proud of its motto, *vis unita fortior*, a band of honest, hearty, working men, strong because united, ready to fulfil their daily duties, actuated as one man by the common object of the advancement of veterinary science.

In your thoughts about life in the living things around you, it must inevitably happen that there will sometimes come to you thoughts of a higher life. However engrossing your occupations may be, a voice will sound in your ears sometimes with the ring of a clarion, and at others faintly, like the far-off tinkle of a vesper-bell, waking your slumbering sense with the words of one of the oldest of our writers whose book is extant, "There is a spirit in man." Whether you belong to the Established Church, or the larger Church of Humanity; whether your views tend towards Theosophy, Buddhism, or Agnosticism, it matters not. The voice is in your inner consciousness, and it leaves with you the yet unanswered question, "What is life?" You see it here, but what will it be in the land of the hereafter? If you have no Christian prophet to speak to you at that time words of consolation, then take with what comfort you may the words of a heathen philosopher, who terminated a long and brilliant career by a stroke with his weapon, saying, as he gave the fatal blow—

> "The soul, secure in her existence, smiles
> At the drawn dagger, and defies its point;
> The stars shall fade away, the sun himself
> Grow dim with age, and nature sink in years;
> But thou shalt flourish in immortal youth,
> Unhurt amidst the war of elements,
> The wreck of matter, and the crush of worlds."

The CHAIRMAN: It now devolves upon me to ask you—and I am sure you will readily do so—to pass a vote of thanks to Professor Brown, the Director of the Veterinary Department of the Government, for his excellent address. I am perfectly certain that all of you here have heard his voice frequently, but none of you, I am sure, have ever heard him surpass himself as he has done to-day. He has brought before you the various stages of your profession in a clear and comprehensive manner, and although I do not feel myself competent to pick holes in it, as I know nothing of what your profession was in years gone by, I am sure you cannot fail to derive much valuable information from his interesting and able address. You have heard from him the way in which Professor Simonds—I believe also Professor Robertson—and other distinguished men have worked to assist in the advancement of veterinary science, and I am sure all of you must feel that there were, as Professor Brown has very truly said, giants in those days. Then he has directed your attention to the present student, and he has made the subject of holidays one of his strong points. Well, now, it has always been my good fortune, during the many years that I have been associated with him, to be able to agree with him, but I am sorry to say that on the present occasion I cannot quite agree with him. I believe that the most active-minded men will be found those who are most active in the field and at play. I am sure that it is a grand thing for every school, and particularly a college such as yours, to have established such a feeling of *esprit de corps* among you. I believe myself strongly in the formation of clubs for cricket, football, and other sports. They are the means of inducing men one to the other to make acquaintanceships which result in lasting friendship, and, I believe, if properly supervised, they are a great bond of union and of strength; at least, sir, as a member of the medical profession, I can say that it has always been found so in our case. Then, sir, with regard to the introduction of the youthful student, which you

have so carefully depicted, into your science and profession, I am sure I can only say that I feel confident that every word which you have uttered is perfectly correct: they have, indeed, a brilliant career before them. In no profession of life at this present moment is the work so thoroughly and scientifically done, and taking a higher position in this country than that of the veterinary surgeon. I believe that the veterinary surgeon of the future will be the most useful of men and most valued friend of every man in this country. Every farmer will look upon him as his greatest benefactor, if only everything is going to be done that has been promised with regard to the prevention of disease by yourselves. The knowledge which you will, by your thorough training, possess of animals, and the careful treatment, when suffering, that they will require, will be of the greatest advantage to the farmer, who will carry out your instructions, because he will know that they are well advised. He will know also that you are skilled in the treatment of animals. There are other reasons also why you will be of such use to the farmer. One thing will be that he will know you thoroughly understand such a thing, for instance, as hygiene, the importance of which cannot be over-estimated, and the healthy housing of cattle. As an ordinary man going about the country, it has struck me many times, upon going into a farmyard, and seeing heaps of refuse about, and the careless way in which animals are all huddled together, how very undesirable this sort of thing was to the farmer who owned cattle. See what advantage your education and knowledge will be, not only to the farmer, but the public at large, because you will be competent to deal with all such matters as those which I have indicated. Now, it is allowed to me to make a few remarks before this vote of thanks is passed, as I am sure it will be, with acclamation, and these remarks I am obliged to say are the wishes really of the Governors of this Institution, and I only wish to speak to you as one of the Governors of the Institution. Now, the Governors of this Institution are firm and decided that this College shall be placed upon a thoroughly scientific and practical basis. They are doing all they possibly can to place this College on a thoroughly scientific basis, and for that purpose, as you know, they have founded a chair of pathology and bacteriology, which I believe is entrusted to Professor McFadyean. I have only to mention his name, and I hear the applause which I expected. They have also entrusted to Professor McFadyean the direction of the course of study which the student is to undertake during the four years which I believe is now the curriculum. This is to be, in the first place, under the personal help and guidance of Professor Brown.

Now, in addition to this, they have done, I believe, since the last session, a great deal to improve the dissecting-room, which I believe was required, and which will, they hope, be found to be of much assistance to you. They have also set apart a room specially to be devoted to the teaching of Osteology and Comparative Anatomy—subjects which are of the greatest importance. In addition to that, you will see that they have framed and placed diagrams of botany, and they have framed specimens of botanical works, which will be found, I believe, in reference to the study, to be of considerable help.

Now the museum. Much importance is to be attached to the museum, and something will be done for it in the future by the collection of specimens. It is earnestly wished by the Governors that if any students or person have any specimens that will be of interest to the profession, that they will bring them here, and have them mounted, and kept here for reference.

There is also, I believe, a chair founded for Materia Medica and Hygiene, subjects which, as I said before, are of the greatest importance to this profession. In practical work they have made special arrangements for the introduction of out-patients and of introducing cases, so that the daily work of the veterinary surgeon may be more perfected, and that it can be more easily

brought before the observation of the student. And, lastly, they are about to make arrangements by which animals other than dogs and horses can be easily brought to the observation of the student. This I believe will be an important addition to the teaching in the institution. It is also their wish that Class C—the department, I believe, for senior students, which is most important for the students in passing their examinations—shall be more subdivided, so that each student shall receive more personal and individual instruction. I have only told you really what the wishes of the Governors are—that they wish to try and place this institution in such a position that it will compare with any institution in this country, and with any institution that has been founded abroad.

Lastly, it is earnestly hoped by the Governors of this College that we may have the co-operation and the assistance of the Royal College of Veterinary Surgeons in Red Lion Square; and it is further the desire and hope of the Governors that in all the changes they may make that we may work in harmony and have the assistance of that body. I beg now to propose that a hearty vote of thanks be accorded Professor Brown for his most excellent address.

The motion was carried by acclamation.

Professor BROWN, in reply, said: In acknowledging the kindness which you have shown me I have only one sentence to utter. Nobody ever heard me object to outdoor games. I am not going into details, but you all know just as well as I do what sort of a holiday I do not approve of. Football and cricket are not among the recreations which I should look upon as a waste of time. Such recreations are sacred—they are restorative, and properly come under the name of holiday. In olden times we are told that it was part of the clergyman's duty to superintend the sports of the villagers—archery, bowls, and other games—after the church was over. Still, if your holiday is not properly spent you may be hurt instead of benefited by it. I should like you to keep in your minds one little motto, "Labor vitæ vita est." I commend those words to your consideration and thought.

The CHAIRMAN: Gentlemen, it is now my duty to call upon the Dean to kindly read the prize list, which will I am sure be very pleasant to all of you.

The DEAN (Professor McFadyean): I have much pleasure in reading the list of prize-winners during the past year.

COLEMAN PRIZES.

Silver Medal	Mr. H. W. Billinghurst.
Bronze Medal	Mr. A. C. Wilson.
Certificate of Merit	Mr. H. H. Whitlamsmith.

SCHOLARSHIPS.

£25 *per annum for Two Years*	Mr. J. Dunstan.
£21 *for One Year—The "Centenary"* ..	Mr. A. E. Black.

CLASS PRIZES.

CLASS C.

Veterinary Medicine	1st Prize—Mr. H. W. Billinghurst.
" "	2nd Prize { Mr. F. W. Hunt and Mr. H. H Whitlamsmith, equal.
Contagious and Parasitic Diseases	1st Prize—Mr. H. H. Whitlamsmith.
" " "	2nd Prize—Mr. W. Robertson.
Surgery and Therapeutics ..	1st Prize—Mr. H. H. Whitlamsmith.
" "	2nd Prize—Mr. H. W. Billinghurst.
Pathology	1st Prize—Mr. H. H. Whitlamsmith.
"	2nd Prize—Mr. H. W. Billinghurst.

CLASS B.

Anatomy	1st Prize—Mr. W. L. Harrison.
"	2nd Prize—Mr. W. H. Prime.
Histology	1st Prize—Mr. W. H. Prime.
"	2nd Prize—Mr. C. Hoole.
Physiology	1st Prize—Mr. W. H. Prime.
"	2nd Prize—Mr. W. Pauer.

CLASS A.

Chemistry and Toxicology ..	1st Prize—Mr. A. Maynard.
" "	2nd Prize—Mr. W. J. Browning.
Practical Chemistry	1st Prize—Mr. J. H. Burnet.
" "	2nd Prize—Mr. J. Dunstan.
Botany	1st Prize—Mr. J. Dunstan.
"	2nd Prize—Mr. F. Hodgkinson.
Minor Anatomy	1st Prize—Mr. J. Dunstan.
" "	2nd Prize—Mr. A. J. Moffett.

At the conclusion of the prize list, the reading of which elicited hearty applause from the students.

The DEAN said: Gentlemen, although the reading of this list has been pleasant in itself, I have something to do which is equally pleasant; that is to say, I have to move a vote of thanks to our Chairman. Now, as one who will have to inflict himself upon many of those here present on numerous occasions during the next six months, I feel that I ought not to use this occasion as a peg on which to hang a speech. But I should like to say that there are several reasons why we should accord a hearty welcome and vote of thanks to our Chairman. In the first place he is a distinguished surgeon, and therefore a member of the sister profession, a profession which is separated only by an artificial line from the one which we prosecute here. In the second place he is one of our Governors. He belongs to a body which has done a great deal to further the comfort of the students, and to promote the efficiency of your education within the walls of the Institution. Lastly, he is a busy man, and I have no doubt that he has come here to-day at considerable personal inconvenience. I have to ask you to accord him a very hearty vote of thanks for presiding here to-day.

The motion was agreed to with acclamation.

The CHAIRMAN: Let me, on behalf of the Governors, thank you for the kind reception which the motion has received at your hands, which is to me a sign of your pleasure that the Governors take such an interest in your welfare. They are, as I have said before, only actuated by one desire, which is to make you comfortable, and to aid your studies, and to make your profession take that stand which everyone of us here wish it to do. Now, sir, personally I have to thank you for the kind way in which you have received the few remarks that I have addressed to you. I have only to say that it gives me the greatest pleasure of my life to come here and to do anything that I possibly can to assist the veterinary profession. I have the highest regard for it. I have a sure feeling that they are doing honest and good work, and I am perfectly certain that no man with a good heart can treat an animal unkindly, or cannot feel that he is performing a very high office in trying to assist them in the healing of disease and assuaging of pain. Gentlemen, I have only to add that it gives me the greatest pleasure on any occasion to make myself useful to this Institution. Before I sit down, I have only one word more to say. In the few remarks that I made to you, I hope you, gentlemen, will forgive me for not saying that the Governors have received with regret the resignation of Professor Axe. His works on surgery are well

known to you, as indeed are the very many works and publications which he has written. Professor Axe has, I believe, been connected with this Institution for nearly twenty-five years; and I am sure we all feel that he has on every occasion upheld the honour and the dignity of his profession, and the honour of the School. Therefore, before I sit down, as a member of the Board of Governors, and as an individual having had many personal acts of kindness shown me and much valued information I have gained from him, let me thank him on behalf of the Institution for the many years' work that he has done for this Institution. I ask you to accord Professor Axe a very cordial vote of thanks.

The motion was carried unanimously amid loud cries of "Axe."

Responding to the call of the students, Professor AXE said: Mr. Chairman and gentlemen, I did not expect when I entered this room that I should be called upon to respond to the remarks which have fallen from the lips of our Chairman, and I will not occupy your time by any lengthened reference to the services which I have rendered to this Institution. They are known, I believe, to a very vast number of the profession, and if they have commended themselves to the profession, that will be an amount of remuneration or satisfaction to me, and in that satisfaction I find my remuneration. As I need hardly say to you, it is with very much regret that I sever my connection with this Institution, to the work of which I have devoted twenty-five years. But changes, although not always, are very frequently improvements; and the worst wish I have for the old School is that the change which has been effected by my retirement will also be an improvement. Gentlemen, I thank you for the recognition which you have given to the observations of the Chairman, and I earnestly hope that all the good things that have been looked for in this Institution, may fall to its lot in the future.

The proceedings then terminated, and the company adjourned to the room where luncheon was served.

NATIONAL VETERINARY ASSOCIATION.

(Continued from page 284.)

Discussion on Meat Inspection.

Prof. MACQUEEN: As Mr. Hunting mentioned, the paper is certainly very concise and very lucid, and rather difficult for one to find any fault with. I agree with Mr. Hunting that the proper mode of discussion is to endeavour to pick holes in any man's paper, and I believe the circular convening this meeting says something about us meeting on an equality, on an equal footing, and therefore one may be allowed to criticise. With regard to the mode of slaughter I have no fault to find with the methods mentioned by the essayist. At the same time I question if it is a subject which comes within the province of the veterinarian. I question whether the veterinary surgeon should engage himself in the consideration of the best mode of killing, when the chief function of his calling is to preserve life. But in killing animals for food it may be necessary sometimes to advise, and I remember some years ago my old master, Professor McCall, was a member of a commission sent to various places to inquire as to the best mode of slaughter. Amongst other places visited was Paris, and there he saw the Bruneau mask. Professor McFadyean alluded to that mask, and gave it sufficient credit. There is one objection to it, viz., it is difficult to fix, and particularly to fix on American cattle. In some places pithing is resorted to; in Chicago, for example, I have seen hundreds of animals pithed, but there they have facilities for doing it that are not to be had in this country. The cattle are arranged in rows, and the individual travels along a platform above the heads of the animals, and darts a long

pithing instrument into the upper portion of the neck. I agree with the essayist that the pole-axe is the best method of killing, but when we come to the passage referring to calves, sheep, and pigs, I should like to enter my protest against the unmerciful mode in which pigs are killed in some parts of this country. They have been seized with a sharp hook in the upper jaw, pulled from the sty, stuck between the two first ribs, and then unhooked and allowed to wander about until they drop dead. That is the system pursued, I believe, even to the present day in the public slaughterhouses at Glasgow. The pigs after they are bled to death are picked up and put into a boiler, scalded, and prepared for scraping. The killing of sheep seems to me a very cruel method, but it is very difficult to interfere with the custom of trades that are not probably within the measure of any special enactment. Passing rapidly over the paper we come to the "requisite inspection of animals intended for food, prior to and after death." I have nothing to say regarding this section, except that I do not agree with the essayist when he wishes to impose upon the veterinarian the full power of saying whether a carcase is fit or not for human food; but in the last paragraph of this particular section he makes a distinction between the function of the veterinarian and the function of the medical officer. I think the proper position of a veterinarian on this question is to say that the carcase, so far as he is abie to discover, is free from objectionable disease, and to leave it to the medical officer of health to determine whether the carcase is or is not fit for human food. I do not look confidently upon the prospect of the veterinarian being able to hold the power to say whether flesh is fit for human food. I do not think the veterinarian has any right to interfere in such a question. I do say, however, that the veterinarian has a right, and it is his proper province—and more should be engaged to-day in the work—to pronounce upon the condition of the carcase submitted to him. Sir Henry Simpson alluded very pertinently to this connection. Carcases are imported largely into this country, and they, no doubt, ought to be subjected to some sort of veterinary inspection. At the present time, I believe, they are inspected by the medical officer of health, the inspector of foods and drugs. It may be that our education will reach a step by-and-by when the veterinarian will be able to undertake that duty, and to say whether a carcase is free from objectionable disease. I say objectionable disease, because I do not look upon every disease as calculated to interfere with the usefulness of a carcase, and if the veterinarian gives his opinion, and says of any particular carcase that, while it is diseased, the disease is not calculated to do any harm, he simply goes as far as he dares to do, leaving it to the officer of health to say whether it should be used for human food. As to inspection prior to slaughter—inspection prior to slaughter, in nine cases out of ten, is not worth a rap. If one refers on this question to an animal that is simply a bag of bones—with all the bones showing, as it were, in relief beneath the skin—then we may hazard the opinion that that animal is not fit for human food, and that it ought to be taken to the knacker's instead of to the slaughterhouse. But take average animals—animals that are sent to market to be sold for beef; a naked-eye inspection of the animal prior to slaughter is not worth anything, not even in cases of disease with which we are somewhat familiar. I think Mr. Hunting has dealt with this section. Inspection after slaughter is a most important thing, and I am entirely in agreement with the essayist, that on every occasion the inspection should be as perfect as circumstances will allow. It may not be possible in every place to carry out the minute inspection recommended by Professor McFadyean, but at the same time the veterinarian should never lose sight of the position that he occupies before the public, and if he fails to find the necessary apparatus within his reach to carry out the inspection, he should apply to the authorities for a little more assistance, a little more apparatus, or whatever necessary

materials he may require. A great many inspectors fail to satisfy the public, they fail to satisfy themselves, I daresay, on this question of meat inspection, because they lack that business tact so necessary in a meat inspector. They do not approach their authorities in a proper spirit, or in a proper manner, and the result is the veterinary surgeon is looked upon as a sort of ornamental utensil, to be called in on occasion, and consulted when necessary, and whose opinion is to be taken and acted upon only if some member of a committee thinks fit. There is too much of that shilly-shallying, too much want of professional backbone, in meat inspectors. Perhaps this is because they receive a very small salary. I should not like myself to depend on the income derived from meat inspection, but that is largely due to the fact that, when a vacancy occurs, there are so many applicants that the authorities may pick, as it were, from the flower of the profession. Coming to the order in which the inspection should be carried out, I do not think it is worth while to allude to these, there being fourteen paragraphs, but I may state this, that some have objected to the incision of the mammary glands, to the incision of this or that; but what is the practice? The policeman, who holds a responsible position in many places, to-day exercises his right of incising different parts of the carcase, and he does not ask anyone's permission. He simply says, "This carcase is here; it looks a little peculiar; there is nothing very definite; it came in by rail this morning; I will look at it." He sticks his knife into the liver, the spleen, and the kidney; he cuts it between the ribs, he smells it, squeezes it, cuts a bit out, tastes it, and so on. All these things are done now. It is useless to offer any objection to a meat inspector exercising his calling. If a man is to inspect meat, he must inspect it. It is no use standing off. Then passing over "the order of examination in other animals," I come to "examination for the *trichina spiralis*." The essayist says, and I quite agree with him, it demands a special paragraph, and in some countries it receives special treatment; and reading on, we come to the statement that "a naked-eye inspection is valueless for the detection of the *trichina spiralis*." We then have a number of figures given with regard to the staff engaged exclusively for this work in the Berlin abattoir, which comprises over 200 people and costs £25,000. When I looked at these figures, I must say my mouth watered. I thought, "Why should I be here? why not in Berlin, to participate in those large bonuses, in the large sum of £25,000; £25,000 for the examination of the carcases of pigs suspected of *trichinosis*. Some gentleman, I believe Sir Henry Simpson, asked a very important question. He asked if all these inspectors engaged in this *trichinosis* inspection were veterinarians. Now I happen to know that they are not all veterinarians, and it holds out some hope for a somewhat overcrowded profession in this country, in view of continental emigration, if necessary, particularly applicable to married men, that in Berlin some 40 or 50 women are engaged in this trichina inspection; they are engaged for the special duty because they have more patience, they are good microscopists, and they work very diligently at the detection of these small trichina. Now we pass on to the next paragraph: "The inspection of a diseased carcase, and the very imperfect means of ascertaining whether the meat is wholesome, or whether the animal is the subject of disease," and so on, until we reach putrefactive changes. When putrefaction attacks a carcase, there is no doubt it is an objectionable carcase, and, as a rule, the meat inspectors and others engaged in the trade, are pretty well aware of this state of the flesh. I do not think we need apprehend very much danger from putrefying or putrid carcases. When we come to the question of special disease, and have to discuss what diseases attacking animals are important to meat inspectors, we must consider whether we are to condemn every kind of diseased animal, or to confine our condemnation to animals that have been subject to some particular disease. No one has yet been able to record a case of death in the

human family from eating tho flesh of a rinderpest animal. No one can record a single bad result from the consumption of the flesh of a pleuro-pneumonia carcase. No one can object to the consumption of foot and mouth flesh. These are three diseases. I have passed for consumption over and over again carcases of pigs affected with swine fever, without any bad result. Taking other ailments, such as parturient apoplexy, I have not the slightest doubt that to the lay mind, and to a large percentage of the professional mind, the carcase of an animal which had died from milk fever is objectionable, but if one is put into a witness-box and asked to state why, it is a very difficult question to answer. One may have a sort of moral or emotional feeling of objection, but one is unable to put it into words in a satisfactory manner. It is certainly abhorrent to most people of a religious turn of mind, or even to those who are not of a religious turn, to partake of the flesh of an animal that has died of some fever, and some say that it is even worse if that animal was approaching, or had passed the parturient condition. But there are many diseases that are not at all objectionable. Take tuberculosis, about which so much discussion has arisen in different parts of the country, where trials have occurred lasting several weeks. I am not now speaking of a confirmed case, where the naked eye could discover lesions that there is no doubt about, but one of those cases with an isolated or localised lesion, about which there is some doubt, where the microscope is required to discover the particular organism, or the nature of the lesion. A question may arise in that case if the flesh is fit for human food. Before people could decide that question, they would require to examine not only the diseased portion, but they would possibly require to examine the whole carcase bit by bit. If the argument is that a carcase containing lesions of tuberculosis is objectionable or noxious, before one could say that any part of the carcase is good, one would require possibly to make an examination of the whole thing. I believe that the best ground to take with regard to such a disease as pleuro-pneumonia, is the removal of the diseased parts. With foot-and-mouth disease, the removal of the affected parts—the head, feet, and tripe—seems to be all that is necessary. In the case of swine fever, the internal organs seem to be the only objectionable parts. I remember hearing what the late Professor Dick used to do when called in to examine a doubtful carcase. He would perhaps say, "I think it is quite fit for food;" and, in support of his opinion, he would cut off a piece and eat it in the raw state. That was his test; if the flesh did not kill him, it was fit for anybody. But that is not a good argument, and it will not do to-day. The veterinarian is expected to take a higher position on this question. He must say that the flesh of a diseased animal is unfit for food. It may not be nice or agreeable to say so to his client, but it is necessary if the veterinarian is to occupy the position of sanitarian hygienist, or officer engaged in protecting the public health. That is a view which, I think, ought to be more encouraged. It may not be practicable in every place, or in every country, but I believe if the action indicated were oftener insisted upon, the veterinarian would give better satisfaction, he would occupy a higher position, and his opinions would be received with much more credence.

Mr. McGAVIN: This matter of meat inspection is one that we are all more or less connected with. I am going to speak to you as a country practitioner, not as an inspector of meat, because I have very little experience as such; but we all have disease to contend with, and it is very often our privilege to see animals killed in a diseased state, and sent to large towns. I agree with what Mr. Hunting and the essayist have said, that all killing houses ought to be registered, but I would go further and say this, that all carcases sent into a large town like Manchester, or Birmingham, or London, ought to have the internal organs sent with them. I disagree with what Sir Henry Simpson

says about simply looking at a carcase, and declaring that carcase fit or unfit, in our point of view, for human food. What do we know about it unless we can examine the internal organs? I consider in many cases, speaking from my own small amount of knowledge, it is impossible to tell simply from the carcase whether an animal is fit for human food or not. The carcase appears in a good condition; it is of a good colour; but all the time it may be affected with tuberculosis and other diseases. Another thing I should like to say is this. We, in the country, are very often called in to cases of parturient apoplexy, to advise our clients. The animal is in very good condition; it was on its feet three hours ago, and seemed, to all intents and purposes, well and in good health; now she is down—she is comatose. It is a case of £ s. d. I advise my client to kill it as soon as possible, and send it off for human food. The carcase is sent into such a place as Birmingham; the meat inspector looks at it, and says it is unfit for human food, and the result is that we bring very great discredit upon ourselves. I should like very much to have the opinion of this meeting as to whether animals suffering from parturient apoplexy are fit for human food. I believe they are quite good enough for human food. If the animal is killed in time, and properly bled before being dressed, I cannot see any reason why that animal is unfit for human food. Another disease is black leg. Sometimes, when you are called in early about that disease, the animal is in a good condition. You advise the person to kill the animal and dress it for human food. Is it fit to be consumed for human food, or, in other words, is that animal healthy? ("No.") I must go along with Professor Macqueen in saying that in my experience I have known hundreds of those animals killed, and I defy any person to bring forward any case where any disease has arisen, or any person has been bad, so far as we can observe, from the consumption of such food.

Mr. R. HUGHES: I come from a district where we have a large number of valuable animals, especially shorthorns and Herefords. For many years the custom of the country has been to destroy offensive parts, and the remainder of the carcase has been consumed. I have not heard of a single case where bad results have followed. It has been done over and over again, and I never knew a bad result from adopting that practice.

Mr. WOLSTENHOLME (Manchester): The necessity for the examination of meat is, I should think, apparent to all veterinarians. If it has not been apparent, what we have heard in this room from our country practitioners ought to make it apparent to everybody. From the words of the Lord Mayor, I am pleased to hear that the public are now awakening themselves to the necessity of meat being examined, and not only to the necessity of meat being examined, but of meat being examined by someone who is acquainted with the diseases to which these animals that make meat are subject. We have been told this afternoon that animals suffering from every disease to which flesh is heir, are being dressed in the country—not eaten in the country, they know better than that; but are being sent to large towns for the consumption of the people in those large towns who eat these carcases. Do the wealthy and the educated eat them? No! the wealthy know what good meat is; the wealthy know where to buy good meat; and the educated also know. These carcases are sent to the large towns; they are bought by the cheap butchers, sold at a low price, and they are sold to people not living under the beautiful hygienic conditions of the country, but people living in what we call our Ancoats district—people herding together, the same as you bring fowls across from Ireland, people herding together worse than pigs in styes, people under the very worst hygienic conditions, where mothers have to breed children, and leave them after a month, and go and work in factories all day long. This is the class of people who have the worst flesh meat; this is the class of people who are being supplied with milk from tuberculous cows. Of course, the people in the country never see the effects of this meat;

it is not likely that they should. They take good care to send it out of the country into the towns. They cannot afford the time and trouble to drive down from remote districts into Manchester and Ancoats and see the effects of eating black-leg flesh upon the delicate women working at a temperature of 80 degs. in factories, upon scrofulous children in close-confined houses, and in unhealthy atmospheres. Of course they do not see it; it is impossible that they should see it, but it is quite possible that they ought to be in their own minds able to follow these things to where they work their dire results. For some years, as a citizen of Manchester, I have been exercised in my mind as to the baneful influence, and the extent of that baneful influence, on the working classes of our large towns. The mortality in some sections of our large towns is simply something alarming—something worse than alarming—almost criminal on the more educated portions of the country. I am very glad to see that in this city we are awakening to the importance of many of these things; we are knocking holes into these crowded districts, we are pulling down unhealthy dwellings, and in many ways improving the sanitary conditions of those who do so much work in the large towns. Just recently there seems to have been either crass ignorance or crass negligence as to the mode of milk supply to the people of these districts to which I am referring. I am delighted as a citizen of this city, that at last, not through public opinion, but rather through veterinary opinion, there has been someone appointed who has at least the qualification of being a veteriuary surgeon. The majority of veterinary surgeons probably are not at once capable of walking an abattoir, they are not at once capable of taking 100 carcases, inspecting them, and pronouncing with any degree of accuracy as to their fitness or unfitness. But a veterinarian would not be long in making himself far and away above the inspectors who have been put over the meat markets of this country of ours. It is not very long ago that a microscopical friend of mine brought a piece of pork that he had purchased in the streets of Manchester which was crowded with trichinosis. It is said in this city that there is very little *trichina spiralis* in the human subjects. Only a few years ago I got hold of a piece of human flesh, and found it alive with *trichina spiralis*. It came from one of our dissecting rooms, so that there must be some *trichina spiralis* in the human, if on casual observation one detects it in that way. What is the use of an unqualified man inspecting meat who cannot detect tuberculosis? What is the use of unqualified men who do not know the use of the microscope, and could not tell what a *trichina spiralis* was if they saw it? You must look forward to veterinary surgeons in the near future occupying a different position in reference to this question. I do think it is a very wise thing that we should feel our own position in the matter, and not wish to take too much upon our shoulders. The medical officer of health, I should say, is the man on whom the responsibility should rest of saying whether this is or is not a carcase fit for human food, but all wise men in this department will only lean to a trained and qualified expert. The position of the veterinary surgeon ought to be in all these cases to point out what is his opinion, and to give his reasons for that opinion, as to whether a particular carcase is fit or is not fit, and to leave it to those men whose duty it is to decide. Personally, I know of animals suffering from pretty nearly every disease to which animals are subject, being dressed and sent to the London market. With respect to anthrax, I cannot say I have known anthracoid cattle sent to the London market, but I have the very best authority of the men who have sent them from the district where I was once an assistant. They tell me that they have sent animals that have died from splenic anthrax, that their carcases have been dressed and sent to the London market; flesh which, if any person dissected it, and he had a scratch upon his hand, in all probability would give him malignant postule, or he might die within a very few hours from acute anthrax. This flesh, from such evidence as I have had,

has been sent repeatedly to the London market. Is any man to say that, because he could not trace the actual mischief that these carcases wrought, there is no evidence that it did such mischief? Again and again we know that animals far advanced with tuberculosis are being cut up, the diseased portions are taken off, and the remainder is sent to the towns for consumption. Being lean and poor carcases, they are not eaten by the well-fed and well-housed, and without doubt, if there is any value in the reason at all, it is an important factor in that horrible notoriety which the English race have for tuberculosis. Again, particularly with respect to Manchester, I with delight see the appointment of a special officer for the inspection of meat, which, I hope, will ere long be extended to milk. I hope that these men will have an acute eye to the surroundings in which meat and milk are kept. If you keep milk in a room to which people that are recovering from scarlet fever have access, what happens? The spread of scarlet fever broadcast over the land. If you have milk vessels in which the milk is to be placed, washed with water contaminated with sewage, and that sewage is contaminated by the excretions from typhoid patients, you spread typhoid broadcast over the land. If you keep meat freshly killed in sheds into which untrapped drains have free access by means of their gases into that room, what may happen? At least you may have typhoid, you may have putrefactive changes, and the formation of ptomaines which shall produce diarrhœa and other diseases. I do think, if in Manchester we had had some expert of this kind when we placed our dead-meat market next door to our night-soil establishment, he would have raised—or he ought to have raised—a very loud voice against any such association; so that, all taken together, we hail with delight the new advance which has been made in this city with regard to the inspection of meat and milk. I do hope that that advance will spread over the land until we have veterinary surgeons in every town of any importance as meat inspectors. Let that demand arise, and the colleges will give to the men special training to fit them for this particular and special vocation. I do not know that I have anything more to say, except that I am exceedingly pleased with the exhaustiveness of the paper, that largely inhibits discussion, and with the steps which are being taken to provide meat inspectors all over this country who have, at least, some qualification for that office.

Mr. ROBERT ROBERTS: I have been inspector of meat for five years. I believe there is no crime in existence so heinous as selling diseased meat. It is selling a poison for human food, and that for the sake of greed. The law, I think, is now sufficiently stringent on that point, if properly carried out. It provides that the inspector appointed shall enter into any shop or slaughter-house, or any place where he finds the flesh of an animal deposited for sale, or in preparation for sale; and then, if he suspects it, he may take it away before a magistrate, who shall examine it, and if the magistrate shall find it diseased, or unsound, or unwholesome, or unfit for food of man, the magistrate must have it destroyed. The question is the inspection. I think the inspection before slaughter is very necessary. While I was in office I used to go to the slaughterhouses, and to the place where animals were cleansed before slaughtering, and once I remember I found a lot of sheep affected with foot-and-mouth disease, and they were to have been slaughtered if I had not gone there to stop them. I have known another instance of several diseased carcases being offered for sale, and I have been the means of bringing offenders to justice. One man sold a jaundiced calf, or exposed it for sale—he was fined only £2 and costs; the man complained very much that he was dealt very hardly with. I remember one of the magistrates, who was a doctor, said: "I do not think your crime is a very light one. If some delicate women or children had partaken of it, it might have acted upon them in such a way as to have caused their death." That man was again caught selling the flesh of an

animal that died from natural causes, and he had three months for that. I think that the meat inspection in the country is very defective, and there ought to be competent men to do it, men that understand the business thoroughly; and I say that nobody could do it so well as the veterinary surgeon. A very good suggestion was made by Mr. Hunting, namely, that slaughterhouses should be registered, or licensed, and that butchers should be licensed and registered. We find three classes of butchers—the first class I call highly respectable, straightforward, honest, and conscientious men; the second are men of pretty good standing, but they will take an advantage if they can get it; the third class of men will do anything, and will say anything, and I am sorry to say sometimes these people are backed by professional men to help them out of the case.

Mr. T. HOPKIN: The essay says, with regard to the Jewish method of slaughtering cattle, "The priest or rabbi then takes a knife, with a long straight blade, and as sharp as a razor, and by means of a rapid sawing motion he severs all the textures of the neck down to the vertical column." Now, according to the Jewish method, this has to be done with one stroke; there must be no sawing; it must be done in one clear movement, if the flesh is to be clean. The second movement of the knife is equivalent to slaughtering the meat unclean. Some time ago this subject of killing came to the front in Manchester, and an attempt was made to prevent the Jews killing their animals according to the orthodox custom. There is no difference in their method of killing, as regards the pain inflicted, than there is in the way in which our sheep, calves, pigs, and lambs are killed. I quite agree with the essayist that these animals should be stunned before they are bled to death, and that we, if we speak on the subject with an united voice, will be listened to. The essayist, in dealing with the question of inspection after slaughter, says, "As previously mentioned, the safeguard afforded by a properly-conducted inspection of the animals killed in the public abattoirs in any given locality may be to a large extent nullified by the importation into that locality of carcases from a town or district in which no proper inspection is carried out." It is not in the public slaughtering of cattle, it is from the country districts where our diseased meat comes into the large towns. A Scotch farmer said to me that scores of carcases at from 15s. to £1 go into a certain town from our district; thoroughly emaciated, worn out, tubercular cases. It is there where the weakness comes in, in the inspection of meat. We want the inspection not only that takes place in the towns, but also in the country districts. Mr. McGavin suggested that the viscera should be sent. He did not look at the practical side of the question. It would be perfectly impracticable to send the viscera; and then as to foreign animals, how many millions of carcases come to this country? You would want another set of ships if you were to send all the viscera.

Mr. J. ARMSTRONG: I do not think it is right that the country people should be charged altogether with sending the diseased meat. I think there is a great deal to be said in connection with the dairymen of towns buying up the scraggy old cows that will give milk for a time, and then getting rid of them. That is how we get rid of of a good deal of tuberculous cattle.

Professor PENBERTHY: I should like to indicate my views on this subject, that it is the duty of veterinary surgeons to indicate to the special conservators of human life any diseased condition from which an animal may be suffering, and it is for the medical officer to deal with that afterwards. As was indicated, we waste our time, I think, by discussing such matters as whether the flesh of an animal suffering from tuberculosis, or parturient apoplexy, or any other disease, is fit for human food. As I have told you before, we may as well expect a doctor to take charge of regulating the hay and corn, or inspecting the hay and corn that a horse may eat, as that veterinary surgeons shall be

those who are to say in relation to food, whether it is fit or not for the consumption of man. We have a clear duty, but I think the most important function this meeting can exercise is to do all it can to press the necessity in the proper quarter for a general inspection of meat, and if they are asked the question, it is for them to say that that inspection shall be such that every means for discovering the diseased condition shall be adopted, and that there shall be some means of registering each carcase, which cannot, in any condition, be overlooked. The Royal College of Veterinary Surgeons have, by including in the new curriculum the subject of meat inspection, shown that they are going to do their part, at any rate, in providing inspectors fit to examine meat, from the point of view which I have just stated; and I think when we have done that, we must leave the matter in other hands, except to use every means, collectively and individually, of impressing on the British public the necessity for a general inspection, with fairness, especially to that part of the community to which Mr. Wolstenholme has referred—the poorer classes—of allowing them to have the article for which they pay. It is impossible for these classes, or any other lay class, to judge of the fitness of meat. It is the duty of the veterinary surgeon to take his share in determining the fitness; and, while it is illegal for a grocer to sell margarine and call it butter, it should be equally illegal for any person to offer the flesh of a carcase, however little, or however much diseased, under any false pretence; and then, if there is a doubt in the mind of the medical officer of health, or other adviser, as to what condition is to be called dangerous to man, then that should be so labelled, or they may deal with it in any way they like. The subject is one in which I am very much interested, and I hope the effect of this discussion will be to press it in the proper quarter, and to give as much publicity as possible to the fact that Mr. McGavin and other people send parturient apoplexy, and believe it to be good. If we simply do that we shall rouse the feelings of the public, who won't be bamboozled if they can help it.

(To be continued.)

THE CENTRAL VETERINARY MEDICAL ASSOCIATION.

An ordinary general meeting of this Society was held at the Holborn Restaurant, on November 2nd. The President, A. Prudames, Esq., was in the chair. The following Fellows were present:—Professor J. W. Axe, A. L. Butters, Veterinary-Captain Butler, A.V.D., M. Clarke, Veterinary-Colonel F. Duck, A.V.D., Jno. A. W. Dollar, H. Edgar, T. C. Garry, S. E. Holmans, Professor F. Hobday, J. S. Hurndall, W. Hunting, F. Jarvis, Veterinary-Major Longhurst, A.V.D., G. C. Lowe, F. C. Mahon, W. J. Mulvey, Professor Mac Fadyean, Professor Macqueen, Professor Penberthy, Professor Pritchard, Veterinary-Captain Raymond, A.V.D., J. Rowe, A. Rogerson, W. Roots, W. Stapley, Professor Shave, Professor Smith, A.V.D., S. Villar, F. W. Willett, J. Woodger, and F. W. Wragg.

Among the visitors were Drs. Goffin and Summerville, Messrs. Maidment, Walpole and Blake.

Correspondence.

The Secretary read letters and telegrams from the following gentlemen who regretted their inability to attend:—Mr. Edwin Faulkner, Mr. J. Low, Mr. Rutherford, Mr. Wheatley, Mr. W. F. Barrett, Mr. A. Gostling, and Mr. W. E. Edwards.

New Fellows.

Mr. J. Roalfe Cox, F.R.C.V.S., of "Claverton," Streatham Hill, was unanimously elected an Honorary Fellow of the Society. The following gentlemen were ballotted for and elected Fellows of the Society:—Mr. J. Wilson Barker and Mr. Joshua K. Bruce.

Nominations.

Mr. W. B. Edwards, M.R.C.V.S., of Royal Veterinary College, N.W.; Messrs. H. Boyson, and T. B. Arnald, of Alder House, Alderbrook Road, Clapham Common, S.W.; Mr. F. O. L. Walpole, M.R.C.V.S., of the Royal Veterinary College, N.W.; Mr. A. Blake, M.R.C.V.S., of Redhill, Surrey; and Mr. Hugh M. Singleton, of Ealing.

Mr. PRUDAMES delivered the following

PRESIDENTIAL ADDRESS.

Gentlemen,—Allow me to thank you most cordially for having elected me to fill the honourable position of President of this Society, and to ask your indulgence for any shortcomings on my part, for when I look at the list of able and talented men who have previously occupied this chair, I feel quite surprised at my temerity. I can only promise to do my best to prevent the interests of this Association suffering through my incapabilities, and shall hope to draw somewhat largely on Fellows absent and present to render the year both pleasant and profitable.

Veterinary Medical Associations are responsible for many pleasant hours; at these times we make old friends and meet new ones, interchange ideas or deal friendly blows, and learn to respect each other and ourselves. As the former continues to spread there will be less bitterness in our differences, and by the latter we shall gradually raise ourselves individually and the profession generally. These processes are surely but slowly taking place year by year. I think we should not depend too much upon what is done for us by the Council of the Royal College of Veterinary Surgeons or any other collective or administrative body, nor rest contented with the reflected light of those few shining stars we have amongst us, although I do not underestimate the value of these several adjuncts. It behoves each individual to further this object by acting so as to make himself respected by those around him, both in his social and professional life; it will then follow that some of the anomalies still existing may be done away with, and instead of surgeons, veterinary surgeons may be appointed as medical officers of health and as meat inspectors, for which duties their education and training render them specially suitable; further, instead of policemen (who already have an excess of duties) being inspectors under the Contagious Diseases of Animals Act, the office will be filled by quaiified members of our profession. This I believe will be still more necessary for the protection of the public if scabies or mange be placed under the Contagious Diseases Act, which should be done without further delay.

It is to be regretted that the British Institute of Preventive Medicine has added so few veterinary surgeons to its committee of management; I trust it will eventually see the advisability of strengthening the institution by making an alteration in this direction, for I am sure there are many able, willing, and fully qualified gentlemen amongst us whose services should be of great value.

The past year will be memorable in the history of our profession owing to the introduction of the four years course of study at the various colleges, an

alteration the value of which time only can prove; however, I am strongly of opinion that to have introduced a summer session as was suggested, would have been a great mistake; at that season of the year sedentary occupation is contra-indicated, and the time may be more usefully occupied by that form of recreation which consists in change of employment, giving an opportunity for gaining necessary practical knowledge under circumstances favourable to health, and thus, to some extent, making amends for the absence of compulsory pupilage. With the improved practical examination—the want of the latter was forcibly shown at the recent examinations—I trust that the additional time will render such mishap a thing of the past.

This Association has in 23 years waded through its infancy and youth thence to vigorous manhood; although it has, like all things human experienced checks, and varying degrees of prosperity, yet I think it has arrived at a period of strength and practical usefulness. Certainly the complaint made in 1882 of want of interest in it shown by the professors or teachers at the London College has ceased; I have only to look around me this evening, or to recall many previous ones, to prove this; nor do I think our brethren in the army are at all behind others in putting their shoulder to the wheel of progress or the advancement of this Society. I hope that during the present year they too will continue to assist in the good work, which can only be carried out satisfactorily by united efforts.

I must express my regret that want of time, owing to domestic and professional duties, has prevented me making these few observations more fitting to this occasion, and close these disjointed remarks by thanking you for the patience you have shown in listening to them; permit me to wish the Central Veterinary Medical Association a successful year, and every member of it prosperity in their undertakings and good health to enjoy them.

The Annual Dinner.

The Fellows then adjourned to the Prince's Saloon, where the 24th annual dinner took place. The dinner was well attended and an enjoyable evening spent. Messrs. Maidment, J. Woodger, W. Roots, A. Rogerson, F. C. L. Walpole, rendered efficiently several songs and recitations, assisted also by Mr. W. Wright (pianist) of Highbury Park, N., ably supported by Mr. Sam Wright (humourist).

LINCOLNSHIRE VETERINARY MEDICAL ASSOCIATION.

A MEETING of this Society was held at the Albion Hotel, Lincoln, on Thursday, October 26th, 1893. The President, Jas. Smith, Esq., Huntingdon, in the chair. There were also present Capt. Russell, T. A. Rudkin, Grantham; Jas. Mackinder, Peterboro'; Chas. Hartley, Lincoln; W. H. Brooks, Leadenham; T. E. Smith, Market Rasen; Chas. Seely, Lincoln; and J. A. Robinson, Hon. Sec., Market Deeping.

Letters of apology for non-attendance were read from Profs. Penberthy, Williams, and Walley, F. W. Wragg, Esq., President R.C.V.S., Thos. Greaves, Esq., and Messrs. J. A. Clarke, W. G. B. Dickenson, B. Freer, H. J. Goodall, J. W. Gresswell, R. T. Hardy, H. Howse, and F. H. Reeks.

Captain RUSSELL said he desired to take the first opportunity of thanking the members of the Society for the resolution of sympathy with him in his late illness which they had forwarded from the last meeting at Peterboro'. He felt very deeply the kindness and consideration of the Society, and it was a source of very deep regret to him that he was unable to be with them on that occasion.

The SECRETARY (Mr. J. A. Robinson) said this Association had the honour to include in its list of members the name of the President of the Royal College of Veterinary Surgeons, Mr. F. W. Wragg. Mr. Wragg was deservedly popular in the profession, and had at different times taken a great interest in their Society. He thought it would be a graceful act on their part to signalise his year of office by electing him an honorary associate, and in accordance with the rules of the Society he gave notice that at their next meeting he should propose his election to that honour.

Pneumonic Disease in Cattle.

Mr. J. MACKINDER, F.R.C.V.S., gave an account of a remarkable outbreak of pneumonic disease in cattle. He said that during the course of the summer he was called upon to see some beasts; on arriving he found one dead and another was ill. Upon making inquiries he found that the duration of an attack was about two hours; an animal in perfect health would be attacked and die within that time. He examined the affected animal; it was down and could not be induced to rise, blowing heavily, the tongue protruding from the mouth, presenting the appearances of an animal in the last stages of filaria bronchialis. He made a *post-mortem* examination and found nothing the matter with the digestive system; on opening the chest he found the lungs full of fluid, and when the lung substance was cut into fluid oozed out until they became almost empty; there was no congestion or pleurisy. On opening the trachea it was found to be full of mucus, the animal having evidently died of asphyxia. He was puzzled to account for the conditions presented, as there was no inflammation or congestion of the vessels of the lungs. The lungs of the other animals when cut into gave the same appearances as the first case. He examined the rest of the animals and found them in perfect health; there was no rise in temperature, and the general condition was good. The animals were attacked one after the other until every one of the lot died, but they went off so suddenly that he was unable to see them alive; in *post-mortem* examination they all presented the same condition. He could not account for the outbreak at all until, to his great surprise, he found that they had been all right until they commenced to be fed on Canadian hay. Every bullock that had eaten this hay died, whilst others on the farm, not so fed, remained healthy, which seemed to him very remarkable. They all died showing exactly the same symptoms; so far as could be seen they were in perfect health and in two hours they would be dead. There were no symptoms of black leg and no congestion of any part of the body, but the thoracic cavity was full of fluid, as were also the lungs when cut into. They had heard of cases in Canadian cattle which were said to be broncho-pneumonia, but the symptoms in these cases appeared to be like preliminary pleuro-pneumonia, the animals going off suddenly after eating this foreign hay. What had caused this? It had occurred at two separate places, and in both the animals attacked were living in the same way. He would like the cause of the outbreak to be thoroughly thrashed out by that meeting.

Captain RUSSELL asked if Mr. Mackinder took the temperature of any of those which died within two hours?

Mr. MACKINDER: I had no opportunity, they died so quickly.

Capt. RUSSELL: You say the chest cavity was full of water, but was there no pleurisy?

Mr. MACKINDER: No.

Mr. HARTLEY: Was there no sign of irritant poisoning?

Mr. MACKINDER: Not the least.

Mr. HARTLEY thought there must be something beyond congestion for them to go in two hours; he rather thought they would have to look further than the Canadian hay; he had had some experience of Canadian hay, having fed horses

on it and had no bad results. He asked if the sanitary surroundings of the place were good and the animals kept in good condition.

Mr. MACKINDER : Yes.

Capt. RUSSELL said he was sorry the animals died so rapidly, as if they had lived longer their friends the professors would have had an opportunity of going into the matter ; it was a mystery that any animal should have its chest full of water and die of asphyxia in two hours, with no rise in temperature. He hoped if Mr. Mackinder had any more cases he would send him a telegram, as he would very much like to see them. He thought it would be interesting if some specialist were to examine the next case microscopically. He said he could not think it had anything to do with eating Canadian hay, as there had been such a lot of foreign stuff brought into the country during the last six months. He had had seven tons of this fodder, and up to the present had not noticed any ill effects.

In reply to a question Mr. MACKINDER said every one of the 10 or 12 animals was dead.

Mr. HARTLEY said he had recently been with his friend Mr. T. E. Smith to see some cases, and they were not able to find the cause of death ; it was very unsatisfactory, for he did not know whether it was due to the presence of something abnormal in the pasture. It might be that, owing to the shortness of keep in the very dry season we had had, they had eaten something they would not have fed on in an ordinary year.

Mr. RUDKIN having ascertained from Mr. Mackinder that about a dozen died, said he thought that Prof. Williams would have liked to have known about these cases after his remarks on broncho-pneumonia.

Mr. MACKINDER said Canadian cattle had been kept in this yard for several years. The whole lot were about a fortnight in dying off.

Mr. ROBINSON said these cases were of great interest as bearing on the question of pleuro-pneumonia *v.* American broncho-pneumonia, and it was a great pity there were no microscopic examinations. In reference to their not showing premonitory symptoms, a they all knew cattle were often very ill indeed without showing anything very decided until just before, death as in anthrax; and, again, the symptoms of many chest diseases in cattle were very obscure. Tremendous alterations might go on in an animal's chest without any visible alteration in its health. It was most unsatisfactory not being able to come to any conclusion, and he hoped that if Mr. Mackinder unfortunately should have any more of these cases he would send a carcase to London or Edinburgh, and they would then get a little more information respecting the disease.

Mr. HARTLEY asked if there was any fluid in the pericardium, and Mr. Mackinder replied in the affirmative, stating that it was of a pale straw colour.

Mr. RUDKIN said that considering the very great quantity of this hay that had been used in this country lately, it was a wonder that there had not been more of these outbreaks.

Capt. RUSSELL asked if they did not think the Association was in a position to take this matter up? He proposed that if another case occurred Mr. Mackinder send a whole carcase to London at the expense of the Society.

The proposition was seconded by Mr. Robinson and carried unanimously.

The President said they were exceedingly obliged to Mr. Mackinder for bringing forward so interesting a subject ; it appeared to be a mystery what the disease was, and he was afraid he was not in a position to elucidate the cause, but it struck him that as they were all feeding on Canadian hay, if it were due to bacilli in the hay, it was rather strange that they got an interval of a fortnight between the first and last cases. He agreed that it was quite possible to get great alteration in structure without much outside show.

He remembered a case of pleuro-pneumonia where the animal was supposed to have recovered and got fat, but when it was killed one lung was found to be an entire mass of disease. It gave him great pleasure to propose a cordial vote of thanks to Mr. Mackinder for bringing the subject before their notice.

This was seconded by Mr. Hartley and carried, Mr. Mackinder suitably replying.

Poisoning by Acorns.

Mr. HARTLEY said he should be glad to know if anyone had come across a diseased condition in cattle through eating acorns, and whether there was generally diarrhœa.

Mr. MACKINDER said he had seen diarrhœa, and the fæces were very black. Opinions were expressed that cattle suffered from tannic acid poisoning after eating acorns, and that pigs were not injuriously affected.

DIETETIC DISEASES.—By J. A. Robinson, M.R.C.V.S.

Mr. President and Gentlemen,—In coming before you to-day in the position of essayist, I must ask your indulgence, in the first place, for appearing in that character at all, and in the second for the many omissions and deficiences which must necessarily occur in a short article on such an extensive subject as the treatment of the dietetic diseases of the horse.

After the brilliant papers we have had during our last year's meetings from Professors Axe and Penberthy, anything I may have to say must appear very commonplace indeed; but as after the most sumptuous feasts we must at some time return again to ordinary fare, I hope you will take the repast offered to-day with as good a grace as possible. I have chosen my subject not because I have anything new or original to tell you thereon, but because I thought it one which would be of interest to the members of the Society, and one which in the discussion to follow would induce most of the gentlemen present to place their experience at the disposal of their fellow members.

I intend this morning to refer principally to those cases of abdominal disease in which we have impairment of function of the alimentary canal, and pain of greater or less severity, and which are generally brought about by an alteration either in quantity or quality of the patient's diet. I have no need to detail the symptoms of this class of diseases, which are as well-known to every gentleman present as to myself, and would only be a waste of valuable time, but I must say that in treating an abdominal affection, a case where the pain is of varying intensity, it is much preferable to one where it is persistent for any length of time in the same degree. In the latter class of cases, though the pain may be but comparatively slight, it is likely to continue for a greater length of time, and is very often due to structural complications, which bring the case to an unsatisfactory finish.

In my experience the large intestines of the horse are much more liable to dietetic disease than any other part of his digestive system; this is probably due to the greater length of time the food ingested remains in those organs, as we may often find post-mortem that the stomach and small intestines may empty themselves very rapidly; but no matter how long the animal had remained without partaking ot food, the large colon always contains a considerable amount of partly digested material. Another reason lies in the lower vitality and vascularity of these organs, otherwise it would be difficult to explain why diseases of septic or nervous origin such as enteritis and volvulus are usually situated in the small intestines, and those of dietetic origin have their location in the posterior bowels.

The principal disease affecting the stomach of the horse is indigestion, and even this is of comparatively rare occurrence; it is usually due to change of food, particularly in the autumn of the year when horses are brought up from

grass and put on hard food. In many of these cases we find that the horse eats well for a few days and then gradually goes off until it becomes difficult to get him to feed at all.

The condition which probably exists in these cases is hyperæmia of the gastric mucous membrane produced by the excess of work suddenly forced upon it, and our duty is to bring up the tone of that organ to the proper performance of its functions. This is best brought about by the administration of a laxative, even though the bowels may be well open, as the slight diarrhœa sometimes present in these cases is an effort of nature which it is our duty to assist. I usually give a pint of linseed oil and order the animal to be kept on soft food, such as hay, bran, and crushed oats for a few days, and then treat him with arsenic in from ½oz. to 1½ozs. doses of liquor arsenicalis according to the size of the patient. This usually acts like magic, and I have often seen cases which had been treated with ant-acids and vegetable and mineral tonics for several weeks, restored in the course of a week or ten days to perfect health. The most important point about this drug is never to continue its use after the desired effect has been produced.

A fruitful source of indigestion in the fens during the last two years has been feeding horses on wheat, which has now, owing to its cheapness from a market point of view, come to be almost universally used in wheat growing districts as food for the farm horses. Even when crushed or soaked there appears to be something in its composition which does not harmonise with the horse's digestion, and wherever it is used many cases of indigestion followed by impaction of the bowels, erythema and grease are sure to be found. In treating these cases I usually give a full dose of aloes, followed by arsenic, and order the diet to be changed. I have found, however, that a horse that has had indigestion from feeding on wheat is sure, during that winter at any rate, to give a considerable amount of trouble.

Impaction of the stomach and tympanitis are in the horse comparatively infrequent, and the former particularly difficult to diagnose correctly, indeed, as far as I am aware, there is no symptom which enables us to positively assert that it exists, unless it is accompanied by tympanitis, when the eructation of gas from the stomach and flow of saliva from the mouth point definitely to the seat of the malady. At one time I always treated these cases with chloric ether which usually produced the result desired, but on giving a little reflection to the subject, I came to the conclusion that the favourable effects of this drug were due not to its stimulating properties but to the antiseptic action of the chloroform it contains. Following out this idea I commenced giving chlorate of potash, which I found produced the result desired at a much cheaper rate, which in these times of agricultural depression is, in a district such as mine, no small consideration. Of course, if the symptoms are very urgent they must be treated; for that purpose nothing can be better than an injection of morphia and morphine hypodermically. I do not think that in this disease the administration of purgatives is of advantage whilst the symptoms are urgent, and as they only increase the irritation, retard recovery, and in some cases turn what might have been a successful case into a fatal one, by inducing rupture of the stomach, though when danger is over, it is as well to clear out the bowels and give the digestive system a fresh start.

In reference to the point I have just mentioned, the following case may be of some interest. One night last spring I was called up to look at a mare which a farmer had brought to my place. He said she had been uneasy most of the day, and had had continual eructation of gas from her stomach. On examining her I found pulse, temperature, and respirations normal, the animal looked rather fuller than usual, but ate readily whilst in my stable. I considered there was very little the matter with her, gave 6 drms. aloes, told

the man she would soon be all right again, and went to bed. In about an hour the man came back saying the mare was much worse, and asking me to go and see her at once. It appears he had trotted her home a distance of about 1½ miles, and on putting her into the stable she ate and seemed all right for about ten minutes, when she suddenly ceased feeding, began to breathe heavily, and broke into a cold sweat. On arriving I found all the symptoms of a speedy visit to the knacker's yard, and giving an injection of chloral hyd. said I would make a call in the morning; the mare stood immovable for about two hours, and then dropped down dead. On her being opened I found a large rupture in the pyloric portion of the stomach, which was larger than usual, and filled with half-digested wheat chaff, a considerable amount of which had escaped into the abdominal cavity. I have no doubt that the physic and violent exercise turned the course of the case from a favourable to a fatal direction.

Proceeding in the natural course, from the stomach to the bowels, we have in our text books elaborate divisions of the diseases of these organs, and—on paper—admirably lucid methods of differentiating the affections of their five or six divisions. By far the most explicit of these is a paper read by Vet.-Capt. Smith at the National Society's meeting at Peterboro' in 1887. After reading this admirable essay and making a study of the plates connected with it, I thought it would be impossible afterwards to have any doubt in my mind as to the exact locality of any bowel affection I might be called upon to treat, but I regret to say that my sanguine expectations have not been realised, and am no nearer than before in being able to state with certainty whether the horse has a twist of the small intestines or a calculus in the colon, and the principle is just as difficult to apply when we try to determine the exact situation of the true digestive diseases.

This being the case I am not in the habit of trying to determine what part of the bowel is affected, but, unless there is some symptom which seems to localise the attack, treat the alimentary canal as a whole. Bowel diseases due to dietary errors may be conveniently divided into cases with tympanitis, and cases not aggravated by this condition and which are usually first brought under our notice as gripes or colic. There are few of these cases which we see before they have had one or more drenches of a more or less beneficial character, but no matter what the previous treatment may have been, where there is cessation of the action of the bowels and no signs of inflammation it is imperative to at once give a full dose of aloes, from half to one dram more than would be given to the animal as an ordinary purgative, in this way we often avoid impaction of the bowels as they are stimulated to increased action before they have lost their tonicity; in proof of this we often find cases which we thought of slight importance and in which we neglected giving a cathartic, prove more troublesome than graver cases in which aloes were administered in the first stages. In the treatment of an ordinary case the pain is best relieved by chloral hydrate, which hypodermically is very effective in its action for this purpose, but unless the pain is very severe, large doses of sedatives should be avoided as they, by lowering the nervous sensibility of the bowels, retard the action of the purgative which would remove the cause of all the mischief.

I well remember at a meeting of this Society some years ago hearing Mr. Banham, of Cambridge, state that his custom in these cases was to administer a dose of physic and talk to the owner till the patient recovered. In the accepted pathology of the disease this is of course the most scientific method of treatment, but unfortunately veterinary surgeons are not yet able to live by science alone, and those practitioners who like myself are not gifted with the persuasive eloquence of Mr. Banham are obliged to amuse the patient's owner with something more tangible than the sound of their own voices.

The usual routine in a colic case in addition to the medical treatment is to give enemas, blister the abdomen, and occasionally use the catheter. I cannot say that any of these operations do any particular harm, but they seem to me as a rule to confer about the same amount of benefit; there can be no greater farce than the administration of an enema to the horse by the ordinary method. I have no doubt that given with Smith's rectum tube they are of advantage, but by the ordinary method with a funnel not more than two feet long it is impossible for the fluid to advance far enough to effect the desired result. By far the most sensible method is to inject about a pint of solution of aloes or of any sedative we may think necessary at blood heat, this will be retained and absorbed, and will produce as good results as when the medicine is given by any other channel. The great majority of cases when thus treated will recover rapidly, but if action of the bowels does not take place within 36 hours after the physic, we have probably to deal with either paralysis of the bowel from debility of its nervous force, or a mechanical blockage of the passage, and inability of the muscular tissue to contract, as a result of the undue tension. As these two conditions cannot be distinguished ante-mortem, their treatment is identical; we should keep the patient warm, relieve the symptoms of urgency as they rise, and endeavour to restore the action of the bowels by the use of neuro-muscular stimulants, of which nux vomica is by far the most effective. I am not an enthusiast for physostigmine, as this drug, though usually producing the desired result, in cases of debility of the bowels has depressing after effects which impair the value of its action; of course in cases of mechanical impaction physostigmine is exactly the thing we want, and given in full doses, one of two things is certain to happen, either the accumulated material will be removed or the bowel of your patient will be ruptured in the attempt to remove it. For myself I am a firm believer in the use of nux vomica in these cases, having often seen one dr. of this drug given daily, restore the tone of organs which had been deficient in action for two or three weeks. All purgatives should be avoided in these conditions and particularly linseed oil, which having no purgative action on the large intestines, aggravates the existing condition by forcing into them the contents of the anterior bowels.

A graver condition is that in which we have the complication of abdominal tympanitis. Our object in these cases must of course be to get rid of the existing gas and to prevent the formation of any more, and the treatment will vary according to gravity of the symptoms. In moderate cases a dose of aloes in solution, with a stimulant such as aromatic ammonia will usually produce the effect desired, but where the extent of the tympanitis makes it dangerous to give aloes, I have found the best thing to administer is oz.iij or oz.iv of Sodii sulph. with dr. ss. of carbonic acid, and repeat in an hour if necessary; in cases not arising from enteritis or structural changes, this will as a rule act favourably, but the patient should always be carefully dieted for a few days afterwards. I very seldom puncture the abdomen, as although we are continally being told it can be done with impunity when and where you like, I have had two cases where the return of tympanitis after the puncture was accompanied by inflammatory conditions not present before the operation, and both of these terminated fatally.

I have had one very successful result from puncturing per rectum as recommended by Capt. Russell, but in my experience it is very seldom that the distended bowel can be reached by this method of operation.

Cases of recurrent tympanitis are a source of great annoyance to the practitioner and are generally due to a grave condition of some of the abdominal organs. A case of this description which I have just had under treatment may be of some interest. About a month ago I was asked to see a mare which the

owner said had had colicky pains for two or three days, she was about sixteen years old and had never had an illness during the six years she had been in his possession; two or three colic drinks had been given. On examining her I found the pulse and mucous membrane very little altered from normal, no appetite, or action of the bowels. Temperature 100 F., slight tympanitis and the pain of a subacute character. Gave aloes dr. vj and thought the case was not likely to be a serious one. In two days the action of the bowels was natural, but there was always slight pain, depression, and abdominal enlargement. The appetite and general conditions improved, but the attacks of tympanitis recurred in a serious degree, at intervals of from three to six days. During these attacks every available method of treatment was adopted, including puncture of the abdomen on four occasions. I felt that there must be something seriously wrong, but at the end of three weeks the case seemed to take a turn for the better, ate well and had not an attack for a week, when one morning she was found dead in the stable; her abdomen was enormously distended, and a severer attack than usual had evidently finished her off. The point of interest comes in the post-mortem, where the bowels after being relieved of the gas were apparently healthy, but the liver was almost absent, that organ weighing only three pounds, and the tissue breaking down on the slightest pressure. The wonder is how this animal could have appeared healthy so long with a liver in this condition, but she certainly showed no marked symptoms of hepatic disease during life, except perhaps the lowness of temperature.

Gentlemen, I must apologise for the length of time I have imposed myself on your patience, but on a subject of such general interest a paper of any length must still leave untouched many important points. I can only say that if my effort has the result of bringing forward the wealth of practical experience possessed by the members present, the slight trouble I have taken will be amply repaid.

Discussion.

Capt. RUSSELL, when the essayist had concluded amidst applause, said this paper showed a large amount of original thought and research, and he had been very much interested in it; they were under a deep obligation to Mr. Robinson for the time and care he had devoted to the subject. On every subject they found opinions differ, no two veterinary surgeons treated a case exactly alike, and no two doctors did so; they might agree to differ but they all thought their own methods were better than their neighbours. He thought cases of indigestion affecting the stomach of the horse were much more common than supposed by the essayist; these cases were often accompanied by tympanitis, the animal so attacked was constantly scraping one fore foot, sneering and turning up the lip; there was in these cases irritation of the coats of the stomach which might lead to rupture. He believed when a cart horse came home from work and had a little long stuff given him it was better for digestion than commencing to feed rapidly on cut stuff which often produced these cases. Mr. Robinson in his paper suggested linseed oil, he himself had seen the most deleterious effects from its use; he now never used it at all. He remembered a horse in Grantham being given a pint of linseed oil which was rancid, and the results were disastrous. He did not believe in the short enema pump as now used at all, but he had great faith in the Gamgee funnel which, when properly used, would convey a very large quantity of fluid into the bowels. With the pump they might pump up a bucketful but it came back immediately. He had great faith in puncturing the abdomen in tympanitis. He had a case in his infirmary which had been punctured five times since the previous morning. He must however warn them against puncturing mares per rectum. Lately he had a case of a mare suffering from tympanitis in which

the colon appeared to be forced right back towards the anus; he punctured her twice per rectum but without result: he then punctured the flank and removed the accumulated gas and the animal recovered. About a fortnight after the mare evinced signs of pain of a subacute character which gradually increased until death, which was due to septic peritonitis commencing in the uterus which had been penetrated by the instrument. He had only had two accidents from puncturing in the flank, and they were abscesses forming at the point of puncture; to avoid this he advised washing the instrument in an antiseptic solution before performing the operation. He once punctured a pony in fourteen places and the result was a complete recovery in an astonishingly short time.

Mr. MACKINDER agreed with Capt. Russell that they often got tympanitis of the stomach, particularly in cases where animals were fed on straw mixed with roots, and in these cases there was always a gurgling of wind as if the a nimal was being choked. He did not object to giving linseed oil, and in case of stoppage or indigestion due to eating potatoes he thought oil was the best thing to administer. He had lately attended a two-year-old colt suffering from stomach indigestion; he was not rolling about but was scraping and in pain, there was scarcely any pulse at all, and passing up the œsophagus was a continual regurgitation of wind. The animal died and on post mortem his stomach was found to be ruptured and full of undigested new corn. He thought that in cases of stoppage and indigestion a bold dose of physic was the best method of treatment.

Mr. HARTLEY asked if care of the teeth did not go a long way in preventing these cases of dietetic disease? He had no faith in the enema pump, but preferred the funnel and did not think it advisable to give purgatives in cases of indigestion with laminitic symptoms.

The PRESIDENT said he desired to thank their Secretary for bringing before them so able a paper. He had had three cases of impaction of the bowels due to horses just up from grass being put on to wheat-straw chaff. The efficacy of the enema pump depended on the condition of the bowels; if they had contraction of the bowels or tympany, any amount of fluid they might force in would be soon ejected. He had great faith in puncturing the bowels in tympanitis.

Mr. ROBINSON, in replying to the discussion, said he was very much obliged to them for the lenient way in which they had treated his paper. On such a wide subject as this there was bound to be a great difference of opinion and they were all naturally inclined to think their own treatment the best, and he found that as a rule if there was anything the average practitioner prided himself upon more than his treatment of milk-fever, it was the composition of his colic drink. He thought cases of tympanitis often died from absorption of septic gases, and he was of opinion that for preventing decomposition in the alimentary canal there was nothing equal to sulphate of soda with carbolic acid.

Mr. RUDKIN proposed a vote of thanks to Mr. Robinson for his interesting paper. This was seconded by Capt. RUSSELL and unanimously carried.

The Veterinary Profession Ignored.

Mr. RUDKIN proposed a resolution regretting that the profession was overlooked by the Board of Agriculture in the appointment of veterinary inspectors, and that the secretary be requested to communicate with other societies, with a view of steps being taken to remedy the matter.

Capt. RUSSELL seconded the resolution, saying that he considered it a gross insult to the profession that inspectors were appointed in the way they were. How could an ignorant man who knew nothing of the internal economy of the domestic animals tell whether they were diseased or not? They were allowed the privilege of calling themselves veterinary inspectors, but in

Kesteven a cattle inspector, who was simply a retired policeman, was allowed to go about the country detecting disease, declaring animals healthy or otherwise. He thought it would be more dignified if the whole of the veterinary inspectors presented their resignations to the County Councils as a means of showing they felt the indignity to which they were subjected.

Some discussion in which Messrs. Hartley, Smith, Mackinder, Robinson and the President took part, then took place, when it was elicited that the state of things of which the resolution complained only obtained in the Kesteven and Holland divisions of Lincolnshire, it was decided to adjourn the consideration of the subject to a future date.

The meeting then concluded with a hearty vote of thanks to the President, on the proposition of Mr. Hartley, seconded by Capt. Russell.

JOHN A. ROBINSON, *Hon. Sec.*

GLASGOW VETERINARY COLLEGE.

(Continued from page 391.*)*

WHEN learning began to revive, and the activity of genius to be exerted for the restoration of science, the medicinal treatment of animals was not considered an object worthy of special anxiety. On the contrary, it remained quiescent in its debased condition, and was left to the tender mercies of those to whom ignorance had consigned it, while the other arts, and among them the art of human medicine, made a distinct forward progress. As a consequence, the farriers took advantage of their opportunities, and partly induced by vanity, and partly by interest, openly professed themselves practitioners in this line. They worked on without principle, amassing whatever tradition preserved, and increasing their code of prescriptions by every novelty with which credulity and superstition provided them. Such was the state of veterinary medicine at home and abroad at the beginning of the sixteenth century, when Francis the First of France gave orders to J. Ruelle, his physician, a canon of Paris, to have the Constantine collection of works on veterinary medicine translated from the original Greek into Latin, which was accomplished in the year 1530, and soon afterwards they were translated into Italian, German and French. The same system was adopted in connection with the works of Vegetus, and from this period we may date the gradual improvement of the veterinary art. During the seventeenth century the veterinary art continued to advance, and numerous publications on the subject were contributed by various authors, among whom we may mention Signor Carlo Ruini, who, in 1618, published in Venice his work, entitled, "Infirmita et Suoi Remedii," and from this book Snape and Gibson, whose works I will presently refer to in detail, as well as most of the early French authors, have copied, without acknowledgment, their anatomical plates. In 1654 appeared that classical work, entitled, "The Grand Mareschal Frangois," and this was followed later on by the elaborate work of Sollysel. Now, about this period what was Great Britain doing for the advancement of veterinary medicine? From history we learn that Blundeville, one of our earliest veterinary writers, who lived in Queen Elizabeth's reign, was doing good work, and subsequent to him, Mascal, Martin, Clifford, and Captain Burdon swelled the ranks of veterinary authors. Contemporaneous with these, Gervase Markham dawned upon the veterinary horizon, and his treatise on farriery, although empirical and absurd, ran through numerous editions, and became the guide to the practitioner of that time. After Markham very little was done to advance the science until the reign of Charles II., when the classical treatise, "On the Anatomy of an Horse," was issued in 1683 by Andrew Snape, farrier to his majesty. From this work I have made several

excerpts, and the first I will offer you is his dedication to the king, which reads thus :—

"To His Most Sacred Majesty Charles II., King of Great Britain, France, and Ireland, &c. May it please Your Majesty, Nothing could have excused or induced me into the Presumption of this Address unto Your Majesty, if Your Royal Bounty towards me had not made such an Application my Duty. For being a Son of that Family that hath had the honour to serve the Crown of this Kingdom in the quality of Farriers for these two hundred years, and being myself retained by Your Majesty's Favour in that capacity; as these hereditary and personal Engagements were the first Motives that put me upon dissecting of horses, that I might be more capable of serving Your Majesty in my Station; so do they entitle Your Majesty to the Discoveries I have made, as being but the effects of such Obligations. And I do the rather flatter myself with the hope of Your Majesty's Pardon in this Particular, in regard that this Essay has something in it that is new and withall of Publick and Common benefit, which Your Royal Goodness hath been pleased upon all occasions to Honour with Your Princely Encouragement and Approbation.

"For the Intention of publishing this Treatise being to instruct Farriers in the Frame, Situation, and Use of the Parts of an Horse, which is the subject of their care; They will thereby, I hope, become more skilfull in applying and administering proper Remedies to the Distempers of that Generous Animal, which yields Your Majesty and Your Subjects that great service both in Peace and War.

"May God Almighty long continue Your Majesty's Gracious Reign over a Loyal and Obedient People; And that Your Majesty will vouchsafe Your Royal Pardon for the boldness of this Dedication, is the humble Petition of

Your Majesty's
Most Loyal and
Obedient Subject
and Servant,
A. SNAPE."

In his introduction Snape rather naively remarks: "In this book are a variety of figures illustrating different portions of the body of the horse, and although I approve of these figures to be by us upon occasion; yet this caution I must give to the student, that he do not trust too much to these copies, as I may call them, without practising upon the original body itself: For as it is not possible to make a good commander by viewing only representative armies without practice and experience in real Engagements, so it is vain for you to think to attain to the exact knowledge of anatomy by minding the figures only." We are also informed that if the body of horses cannot be obtained to dissect, that those of other animals will do as well, because the organs are similar in situation and relations in almost all animals. From these remarks we have no difficulty in arriving at the conclusion that the facts of comparative anatomy were recognised as of importance even two centuries ago. A fitting final to his introduction appears in the form of a plate, showing the figures of several horses, and underneath it we have the following lines—

"In Fields nor Pastures, Woods nor Forests wide,
Does any Beast so Noble as this Reside.
His Nostrils raise a Tempest when he blows,
His Feet produce an Earthquake when he goes.

Runs he? the swiftest Winds behind retire,
Whilst from his Eyes flow streams of flaming fire,
Would'st know his Parts, the following Book peruse,
Which shows of each the Figure, Seat, and Use."

In the body of Snape's work we find many interesting features and noteworthy points, a few of which I will touch upon, in order to give us an idea of

the notions which prevailed at that time, and which, looked upon by us from our superior scientific standpoint, seem absurd, and yet show a remarkable ingenuity and clearness of reasoning which we cannot but admire, and which we might liken to a man who has found a precious stone, which only requires time and patience to cut and burnish it, and thus convert it into a most valuable possession.

The first I will notice is the colour and use of the hair. According to Snape, the colours are various, according as is the humour which doth predominate in the body; for such as the humour is which is driven forth towards the skin for their nourishment, such will the colour of the hair be. As for instance: If the cholerick humour doth most predominate, then are the hairs of a black, a sorrel, or a chestnut colour; if blood most predominate then will the horse be a bright bay or roan; if phlegm, then the horse will be of a milk-white or yellow dun; if melancholy, then will the horse be of an iron grey or mouse-dun. As regards their use, these are to cover the skin, to defend it, to be an ornament to it, to suck up that excrementitious, superfluous juice which, through the pores of the skin, is sent from all parts of the body to them.

Secondly.—"The Uses of the Fat." The use of the fat is, like a garment, to keep the body warm and cherish the natural heat, which by its clamminess it hinders from evaporating too much; and, on the other side, by its thickness it stoppeth the pores so that the cold cannot enter in. It also fills up the empty spaces between the muscles and the wrinkles of the skin, by which the horse is made plump, smooth, and beautiful: and therefore old, lean, and decrepit horses are deformed for want of fat. It serves also as a pillow or bulwark against any violence, either from blows, bruises, or heavy weights, and the like. Finally, it relieveth such creatures as abound with it, in time of scarcity or want of sustenance, by being converted into nourishment; for it serves as aliment, and holdeth the parts of the body in play till the creature attain its proper food.

Thirdly.—"The Separation of the Gall from the Blood, and its Use." As regards its separation, he says that no separation can occur without the presence of some ferment to cause it, and he explains it in this way: A considerable amount of blood comes from the spleen to the liver, and this blood has a sourish, harsh taste as compared with the rest of the mass of blood. This sourish blood, then, mixing with the rest of the blood in the liver, and passing through its narrow vessels, sets up a fermentation (just as a piece of sour dough ferments unleavened bread), and in that fermentation the yellow choler is separated from the blood much in the same manner as yeast from beer in a barrel (which it partly resembles in colour), and this fermentation is assisted by the proper nature and faculty of the liver, given by *nature* to it, who hath also framed this liquor of particles so differing from those of the blood that though the blood pass out of the porta into the cava, yet the choler stays behind and is received by the small mouths of the choler passage. Rather an ingenious, although fallacious observation.

With respect to the uses of the gall, very little fault can be found with his explanation, which I regard as an excellent one. He says: "The use of the gall is, together with the juice that is sent from the 'sweet-bread,' to make a ferment in the first intestine, which serves by its acrimony to stimulate the intestines to expel the excrements contained in them; and, seeing there is no gall bladder to store it up in, it passes continually to the intestines, whereby horses come to defaecate oftener than most other creatures;" which, as Dr. Brown notes, "was prudently contrived by Providence in this animal, considering his plentiful feeding, the largeness of his intestines, and their various circumvolution. For," says he, "choler is the natural glyster, or one excretion whereby nature excludes another."

Fourthly.—"The Pericardium, Heart-bag, or Purse of the Heart." This is the coat or skin which compasseth the heart, and in which the heart hangeth. Its use is to preserve the heart, and contain a certain moisture or humour in it; to keep the heart, which is a very hot part, moist and cool, and to make its motion more easy. As regards the origin of the moisture contained in the heart-bag, a variety of opinions seem to have been held in Snape's time. He says: "Some will have it that it is fed by liquors which we drink, of which opinion is the learned Hippocrates, who confirms it by advising the following experiment to be tried on a pig, namely, to keep the pig fasting for some time, then give it water or milk to drink, mingled with vermillion, after which kill it and open the windpipe, and also most of its branches. Then you will find along the inside of all the tubes you have opened the colour of the liquid which it drank, even to the extremities of the smallest pipes. And from these pipes our author says part of the liquid has distilled into the heart-bag." This theory Snape considers is not very probable, but he mentions it because of the great fame and antiquity of the author who propounded it. Other authors are of the opinion that it distils out of the kernels under the tongue into the weazand, and from thence into the arteries and heart, and so into the heart-bag; but this Snape says is as improbable as the former. A late learned author thinks that it issues out of certain glands or kernels seated at the base of the heart, and with regard to this, Snape says: "This is an opinion that is somewhat likely, though I think the next is to be preferred before it which runs thus: 'Others (amongst whom is Bartholin) conceive that it proceeds from moist vapours and exhalations forced out of the humours of the heart by the motion and heat thereof, which, being stopped by the closeness of the heart-bag, are by its respective coldness congealed into water.'"

Fifthly.—"With respect to the Pulsation or Beating of the Heart." Snape says it is very difficult, if not impossible, to give any satisfactory reason of it. Some impute it to the flowing in of the animal spirits by the nerves, others to the boiling and rarefaction of the blood in its ventricles; but one thing he considers is certain, namely, that the muscular fibres of the heart are the immediate instruments of its motion, and that these receive their power to move from the animal spirits conveyed by the nerves; but what it is that puts these fibres upon such a reciprocal motion of contraction and relaxation as the heart observes, he, as well as the greatest anatomists of the day, are ignorant of, and therefore he will not pretend to give a reason for it, but only admire the wisdom of the great Creator in framing such an engine so necessary for the conveying of life, heat and nourishment to all parts of the body.

And *lastly.*—"Speaking of the Brain," Snape says: "All authors agree that the brain is one of the most noble and excellent parts of the whole body, in proof of which it is placed in the highest situation, and surrounded by strong walls on every side to secure it from outward injuries.

In it are contained the animal faculties of *sense* and *motion*, the former having as a bodyguard the eyes to act as sentinels; the ears to listen to any dangers that are approaching, and avoid them; while the instruments of smell and taste are there to receive necessary and profitable foods, and to reject those which are unpleasant and hurtful, whilst the latter was her dominion extending to the farthest limits of the body, with every limb and member perfectly under her control, and moving this way or that as she may direct.

How any man can say that a horse hath not a brain seems to Snape absurd and ridiculous, yet such exist to his certain knowledge, and persist in their erroneous opinion, and he wonders how any such dolt can have the confidence to take upon him the name of a farrier, and pretend to cure he knows not what. To these his advice is, when next they see a horse knocked on the head

to make a careful examination between and below the ears and convince themselves; after which, to take pains and satisfy themselves regarding the other parts of the body, as described by him, and in that way they will improve themselves in their profession, and help him to obtain his wished-for end, namely, their advancement.

The next author whose works I will refer to is William Gibson, who wrote during the early decades of the eighteenth century. He acted in the capacity of surgeon to a cavalry regiment, but his love of human medicine seems to have taken a second place to his love for the horse. His most notable contributions to veterinary science were the "Farrier's New Guide," which was an improved edition of the celebrated works of Solleysell, with a considerable amount of original material. "The Farrier's New Dispensatory," which met with a very favourable reception in England, and, lastly, a book on "The True Method of Dieting Horses, etc., with Observations concerning Breeding and the manner of Raising a Beautiful and Useful Race of Horses." This book turned out a great success, and in the year 1731 had entered upon its third edition. In it we find the first attempt made towards establishing a system of preventative medicine, and as this is now recognised as undoubtedly one of the most important factors which has assisted in raising veterinary science from the level of the shoeing smith, and elevating it to the comparatively exalted position which it now holds, let us give all honour to Gibson for having first brought its claims prominently before the notice of the public. In this book are many points of importance, and attempts are made to combat many of the existing fallacies regarding proper food and hygienic surroundings, etc., of the lower animals. Here first we notice the extreme views prevalent, that the predominant humours of each animal stamped its peculiarity of colour, antagonised, although Gibson does not dispute the fact that certain colours betoken horses to be more durable and lasting than others, as well as more beautiful. He also gives us important information regarding the proper conformation of the different parts of the horse and remarks upon the difference in the size, shape, and conformation of the horses of different countries, which render them suitable to the services and uses required in the land where they are bred, and causes each type to have a beauty and an individuality peculiar to itself. Beauty in animals, he says, includes not only the external make but also that which actuates and gives motion to all the several parts. There is something in a beautiful horse so agreeable that we are charmed, and, as it were, brought into a rapture at the very sight of him, though we are not always able to declare the reason—something the most experienced horseman can better conceive than describe. In the words of Virgil, "His eye is piercing, fixed, and, as it were, unmovable from its object; it is also full and well formed—he has a majestic awfulness in his whole countenance which is, nevertheless, tempered with serenity and gentleness, and all the other marks of true courage. His whole action agrees with his temper; he is fierce or gentle as this or that affection moves him, according as he provoked or applauded. His muscles appear at every motion, not flabby, but firm and distinct; his veins, like so many rivulets, are winded in an infinite number of meanders; his limbs are clean, nervous, and durable, and ready upon every call. A fine horse seems, of all brute creatures, to approach the nearest to man, both for beauty, majesty, and sagacity, and his services are also the most noble and excellent."

As regards the vices of horses connected with feeding, Gibson tells us that the most important one is the "tick," and from his description we have no difficulty in recognising it to be synonymous with the vice of wind-sucking and crib-biting. This he considers to be due to some itching humour or aching pain affecting the teeth and jaw, and the treatment advised is to rub the jaws with salt and water, and remove the horse from any place suitable

for the continuance of the vice; also to tie him up by himself for fear he should teach any of the other horses the habit.

Gibson in his dissertation on the method of breeding horses, makes a few remarks which are worthy of consideration. He says the stallion should be free from all hereditary infirmities, and a most particular point is, that he must have good sound, well-shaped feet. With respect to his other necessary qualifications, I do not think I can do better than give you Virgil's description, which Gibson quotes—

"The Colt that for a Stallion is design'd,
By sure Presages shews his generous kind;
Of able Body, sound of Limb and Wind,
Upright he walks on Pasterns firm and streight;
His Motions easy, prancing in his Gate,
The First to lead the Way, to tempt the Flood,
To pass the Bridge unknown, nor fear the trembling Wood.
Dauntless at empty Noises, lofty Neck'd,
Sharp headed, Barrel-belly'd, broadly Back'd;
Brawny his Chest, and deep his Colour Grey,
For Beauty dappled, or the brightest Bay,
Faint White and Dun will scarce the Rearing pay.'

On the other hand the mare ought to be no less perfect than the horse, as he considers that the constitution, temper, and disposition of the offspring is largely moulded from that of the mother, the two latter probably being associated with the fact that earliest and first impressions, when they are bad, lay the foundation of an ill habit; and, therefore, if a foal has a mother with a bad temper, and of a vicious disposition, it is also very likely to develop the same. The other particulars given regarding breeding, treatment, &c., of young horses do not call for special comment, and many of them are, judged by the light of the present time, both absurd and impracticable.

The next author to whom I will refer is Dr. Bracken, who lived about the same time as Gibson, and was well known as a man of learning and a sportsman. He wrote several works, which were pretty much after the style of Gibson, only more condensed. The one I will give you a few extracts from is entitled "The Gentleman's Pocket Farrier, with remarks." This book consists of an abridged reproduction of "The Gentleman's Pocket Farrier," written by Captain Burdon, and the remarks consist of an exhaustive criticism of the same by Dr. Henry Bracken. Amongst these I have the following:—Captain Burdon, in the treatment of shoulder-slip, advises a stimulating liniment to be applied, and a rowel introduced about two inches below the front of the shoulder, for the purpose of drawing away the humour. He says: "Some farriers cut a hole through the skin in the middle of the shoulder, and (with the shank of a tobacco pipe) blow it as a butcher does a shoulder of veal; then they run a flat, cold iron, like a horseman's sword-blade, eight or ten inches up, between the shoulderblade and the ribs (which they call boring); after that they burn him round his shoulder with a hot iron, and cross it like a glass window; next they lay a charge all over the shoulder (which is a composition of pitch, resin, and tar), then put a patten shoe upon the contrary foot, and in that condition turn him to grass." He says: "I cannot say I ever knew a horse cured by this method, but I have known many a one lame ever after, for they never get clear of the stiffness which the boring and firing leave in the shoulder. A tender-hearted man would be astonished at the cruelty of this invention, for all that can be obtained is a free discharge of the humours (occasioned by the wrench) which may lodge between the shoulder blades and the ribs, for which you will find rowelling alone sufficient." In regard to this Dr. Bracken remarks: "This is as absurd and foolish a notion as any in the whole book, for a rowel or wound made to drain off humours can no more pick, cull, or choose that particular humour

from the blood than a seton or issue; whereas the matter discharged by such wounds is no more than blood turned white by congestion, and is as good blood, excepting the colour, as any in the horse's body. But, then, I am presently told that the horse grows sound after oiling, rowelling, &c. I answer that time and patience is most of the cure, for the muscles of the shoulder, being overstretched or relaxed, there is afterwards a tension on the part which requires time to recover its natural tone; and if the Captain has been acquainted with the doctrine of the force and elasticity of an animal fibre, he would not have prescribed rowelling, for in truth it neither does good nor harm." Speaking of this book as a whole, I consider that the prescriptions employed and the treatment advised for the cure of many of the diseases are of such a nature that they are unworthy of reproduction, and too often cruel in the extreme.

The next author we will refer to is J. Bartlet, who, like his immmediate predecessors, Gibson and Bracken, was also a surgeon. He wrote a book entitled, "The Gentleman's Farriery; or, a Practical Treatise on the Diseases of Horses." This seems to have been the most popular work of its time, and so much was it run after that in the year 1796 it had reached its twelfth edition. In the preface, which is well worth perusal, Bartlet does not forget to give the existing practitioners of that time a severe censuring. advising them that if they would pay less attention to the set of paltry receipts handed down to them from their ignorant grandsires, and apply themselves more particularly to the study of the symptoms of the disease shown by their patients, and in its case use a few simple medicines, assisted by the co-operation of nature, then they would have more safety and expedition in their cures, and not be dependent for success so much upon the fact, that the constitutions of some animals, like some fortifications, are bomb-proof, and can support the shocks of the whole medical artillery, as is too often the case. This book, to a great extent, is built of material taken from the works of Bracken and Gibson, and noticeable in its contents are a very accurate and complete description, under the designation of stag evil, of the disease now recognised as tetanus, and also a cure for farcy; besides which we find the detailed account of the cause and seat of glanders, as described by La Fosse (the French king's farrier), carefully considered, and his method of trepanning commented upon; and lastly, a new method of nicking horses' tails, with a description and engraving of the machine employed. Succeeding him came Osmer, who began life as a medical practitioner, but, finding the treatment of animals more congenial to his taste, he renounced his former calling and commenced practice as a veterinarian. He turned his attention more particularly to the lamenesses which affect the horse, and wrote a book on the subject, in which he says that the method of shoeing adopted at that time was, in his opinion, responsible in a great measure for many of the lamenesses which were prevalent, and to combat this he brought before the notice of the public a new method of shoeing, which was undoubtedly a great success, and continued in vogue for many years.

The next author whom I will bring before your notice is John Wood, formerly farrier to the King of Sardinia, but who latterly settled as a veterinarian at Cheshunt, in Hertfordshire. He wrote a work entitled, "A New Compendious Treatise of Farriery," which, in 1762, reached its second edition. Contained therein we find a few points worthy of notice. For example, his treatment of colic is good, and his remarks on shoeing, in which he condemns the use of the excessively heavy shoe, are worthy of passing comment. However, one's admiration for him cannot reach a very high pitch when we notice that he still holds some very antiquated notions regarding muscular contraction, and the composition of the blood, and in their explanation brings forward reasons which are unsupportable and hazy in the extreme. He also

gives us an erroneous description of the course the Bot worm takes in reaching its destination in the horse's stomach, which is rather ingenious. It reads thus :—"The Bot worm is the offspring of a fly which is only found in open places, hence horses going at grass, and those kept in the country, are most affected. When the fly wants to deposit its eggs it gets under the horse's tail, creeps into the anus, and glues its ova to the internal coat of the rectum so fast that the dung in its passage cannot rub them off. They are there hatched, and produce a worm composed of several rings, furnished with short, strong bristles, so disposed as to hinder its going backwards, but to facilitate its progress up the intestines towards the stomach, where it finds its proper food. There it fastens itself by means of two strong unciform teeth, and remains until such time as it is again turned to its nymph state. These worms are then voided and changed into the same sort of fly as their mother. If these worms are not destroyed, then when they attain their full growth, not finding sufficient food in the stomach, they eat through the walls, get into the abdomen in search of food, and destroy the horse."

The next point of importance in the history of veterinary medicine is the action of the French Government in founding a veterinary school, and to them belongs the honour of having first reduced the principles of the veterinary art to a foundation of regular science. On the 5th of August, 1761, the Council of State issued a decree empowering M. Bourgelat to establish in the City of Lyons a school in which might be taught the knowledge and treatment of diseases incident to cattle of every description. Towards its support they granted a sum of about £350 a year, payable for six years, to defray expenses of house rent, built a complete establishment, and allowed the institution to retain all monies taken in fees, etc. The first school was opened on the 1st of January, 1762, and continued to advance in prosperity, and to do good work for the benefit of the kingdom and the brute creation, to such an extent that in the year 1764, as a mark of his satisfaction, the king permitted the school to assume the title of the Royal Veterinary School. Soon afterwards, in the year 1765, a second school was founded at Alfort, near Paris, and up to the present date remains. To the French schools flocked pupils from almost every country in Europe, with the exception of England, and soon afterwards these countries founded schools of their own, the most notable of which were in Vienna, Denmark, Sweden, and Prussia, whilst Britain still remained in the background. This state of things continued in Britain until the year 1791, when the Veterinary College of London was established, but during the thirty years preceding this some authors wrote whose works deserve passing notice. Among these contributions we find one entitled "The Farrier's and Horseman's Complete Dictionary," by Thomas Wallis, surgeon. This work is of the most complete kind, and embodies in it all the then known diseases, arranged in alphabetical order, and described in the form of extracts from the works of the most noted authorities on veterinary matters, such as Gibson, Bracken, Bartlet, La Fosse, and Wood, besides which there are numerous interesting points regarding medicines, shoeing, stable management, *mènage*, and the dieting of horses. This book ran through numerous editions, and was highly prized. After him came James Clark, the king's farrier in Scotland, who wrote a book entitled, "Observations on the Shoeing of Horses, together with a New Inquiry into the Causes of Disease in the Feet of Horses," and subsequently a work on the "Prevention of the Diseases of the Horse Generally." The former work reached its third edition in the year 1782, and was deservedly popular. In it are many noticeable points, and a laudable attempt is made to improve upon the existing method of shoeing, which the author characterises as consisting of a process whereby the hoof is first destroyed by paring, and then the defect supplied by putting on a broad, strong shoe.

Time will not permit of me going into this book in detail, and the only other point I will draw your attention to is his description of the disease termed "founder," which for the first time is brought before our notice in its proper light. Previous to this time, the disease was supposed to be due to the grease or fat in the horse's body becoming, as it were, melted, and by the force of gravity falling downwards and lodging within the horny box of the horse's foot, or some other equally nonsensical idea; but Clark seems to have devoted a considerable amount of time in investigating this matter, and has arrived at conclusions regarding its pathology, which are almost identical with those now held and found to be correct. About this same period a book appeared, entitled, "Every Man His Own Farrier," which was simply a collection of the favourite medicaments used by the farriers of the time, some of these of the most barbarous description, and was published at Winton in 1780 by Sir Paulet St. John, Bart., of Farley, Hants. It is unworthy of further notice.

Last of all, I will refer to "The Gentleman's Stable Directory; or Modern System of Farriery," written by William Taplin, surgeon, which reached its fifth edition in 1788. On perusing this work, what occurs to one is, that for flowery language, fertility of resource, and egotistical ideas, Taplin stands probably unequalled, and certainly unsurpassed, by any of his contemporaries; but at the same time, his arguments are so specious, and his reasoning so seemingly sound, that in his combating of many of the existing treatments of diseased conditions, even in his most sarcastic manner, he has proved one of the best friends to the suffering animal and easily-imposed-upon owner.

As an example of this, I have transcribed the following from page 13 of the preface to his book, where he says, in speaking of horses:—"The almost incredible number of this truly valuable part of creation that annually fall victims to the invincible confidence of those rustic sons of Vulcan—self-denominated farriers (with the thunder of whose ignorance almost every village resounds), has for years seemed to implore the assistance of some intelligent member of society to come forward, and, by blending the administration of medicines with a practical knowledge of their properties and effects, rescue the poor suffering animals from the constant, invariable, and unrelenting depredations of illiterate practitioners and experimental persecutors."

In his book he takes every opportunity to depreciate the works of his predecessors, Snape, Gibson, Bracken, Bartlet, La Fosse, etc., but at the same time leaves himself open to severe criticism on many points, one of which is conspicuous; for when we come to his article on Jaundice, or the Yellows, we find him giving a detailed description of the gall-bladder of the horse (a non-existent organ in that animal), which, he says, lies between the two lobes of the liver; and this itself proves, even to the most incidental observer, that Taplin himself was not altogether accurate, and did not scruple to indulge a little in assumption. We also find that when we come to the conclusion of his book, that over and above his love of self-glorification, which is conspicuous through all its pages, there is a printed advertisement pertaining to himself and his medicines, which savours to a great extent of that which he professes to condemn in every shape and form, namely, quackery.

Now the question comes, what did all these authors do, whose books I have mentioned, towards the advancement of veterinary science? In answer to this I say, they kept it prominently before the eyes of the public, and did much to free it from the empiricism which pervaded the works of their ancient predecessors, but, at the same time, their practice and their prescriptions were so largely made up of cruelties, improper treatments, rash assumptions, and incongruous ingredients, that the wonder is not why so many animals died under their hands, but why any escaped at all. However, the same thing in

early days may be said to apply with equal accuracy to the treatment and practice adopted by members of the sister profession towards their unfortunate patients; and as the latter profession improved its position, and disease came to be better understood and more rationally treated, so did the art of veterinary medicine make rapid strides to the front in this country as well as in others. Soon teaching institutions in veterinary medicine were formed, and in the year 1791 we find the Veterinary College of London an accomplished fact, with Charles Vial de Sambel as its professor, His Grace the Duke of Northumberland as president, and as its vice-presidents and directors, many of the most eminent and titled men of the day.

After the foundation of the London School, the study of veterinary medicine was taken up with renewed vigour, and students attended in with gradually-increasing numbers from far and wide. Soon Scotland followed suit, and in the year 1882 Professor Dick founded a school in Edinburgh, called the Royal (Dick) Veterinary College, which still exists, and is now carried on under the able Principalship of Professor Thomas Walley. Subsequent to this, in the year 1861, the Glasgow Veterinary College was founded by our present worthy Principal, and in its uninterrupted run of success, stands forth as a prominent memento to his ability, hard work, and perseverance. And, lastly, in the year 1873, Principal Williams established the new veterinary college in Edinburgh, which is equally worthy of being placed upon the same platform as its sister institutions.

Now, what have these and similar institutions done for veterinary medicine? Well, they have raised it foom being a mere art, and enabled it now to rank as one of the most important sciences, and to take up the position which it now holds, not only of dealing with the diseases of the lower animals, but also of assisting, regulating, and controlling the cattle traffic of this country, and of proving of incalculable importance in many ways which were undreamt of by our empirical ancestors. The days of empiricism have now vanished, and been replaced by sound reasoning. Imaginary diseases have now assumed a stern reality, and the exactness of diagnosis regarding animal maladies can only find a counterpart in the study and practice of human medicine. The veterinarian, who previously was a man of little or no culture, with the advance of education has developed into the scholar, and from the scholar is now in the fair way of developing into the learned scientist. Our preliminary examinations are now much stiffer, the number of our classes increased, and the time of our studies lengthened, and with this gradual progressive turning of the educational wheel, who can say to what a position the veterinary surgeon of the future may not aspire?

ROYAL AGRICULTURAL SOCIETY.

At the monthly council held on November 1st, Sir John Thorold (Chairman) presented the following report from Professor Brown:—

Pleuro-pneumonia.—Since the last meeting of the Committee, another outbreak of this disease has been discovered in the vicinity of London, on premises at Cricklewood, in the occupation of a dairyman and cow-dealer. The existence of the disease was reported on September 26th, when several of the cows on the premises were ill, one of which actually died of the disease, before the order for slaughter could be obtained. Of the thirty-seven cattle on the premises, no less than ten were more or less affected with the disease in different stages, plainly indicating that it must have existed among them for some time. The owner, being a dealer, had sold cattle to several people in the London district; these, numbering 156, were traced and slaughtered. Some of the diseased cows in this outbreak were traced to

Derby and Nottingham, and 144 cattle with which they had previously been in contact were traced and slaughtered.

Swine Fever.—The last published weekly return relating to this disease shows some decrease as compared with preceding weeks, and is below the weekly average since the beginning of the year. In the week ending October 21st, there were thirty-two fresh outbreaks and 165 swine attacked. The weekly average for the first forty-two weeks this year has been fifty outbreaks and 263 attacked.

Anthrax.—According to recent returns this disease is still increasing. In the week ending October 14th, there were fifteen fresh outbreaks reported, and forty-one animals attacked. The weekly average for the forty-two weeks of this year has been ten outbreaks and twenty-three animals attacked.

Rabies.—This disease has increased very much this year as compared with last. There have been sixty-five cases in forty-two weeks this year, as compared with twenty-three in the corresponding period of last year.

The question of experiments into the disease of abortion in cattle had come again under consideration, and the Committee recommended that a letter be written to the President of the Board of Agriculture, to call his attention to the serious losses which are caused by contagious abortion in cattle, and to urge that the Board of Agriculture would, without delay, take up the question of inquiry into this disease, as it was understood that the investigations into tuberculosis had now been concluded. The Committee recommended that prizes be given for horse-shoeing competitions at Cambridge upon the same lines as last year, but that the horses to be shod be Roadsters in Class 1 and Agricultural Horses in Class 2. They proposed that a lecture on horse-shoeing should be given during the time of the show, as in previous years. The Committee recommended the appointment of Mr. R. S. Reynolds, M.R.C.V.S., of Municipal Buildings, Dale Street, Liverpool, as the Society's Provincial Veterinary Surgeon for the South-Western Division of Lancashire. Professor McFadyean reported that he had paid a visit to Northumberland for the purpose of investigating the outbreak of louping-ill in that county, and that the investigation was still proceeding. Professor McFadyean had also presented the following reports (*a*) upon the employment of "tuberculin" as an aid to the diagnosis of tuberculosis in cattle, and (*b*) upon an iuvestigation into deaths of animals upon Lord Cawdor's estate in Pembrokeshire :—

(*a*) "*Tuberculin*" *as an Aid to the Diagnosis of Tuberculosis.*

On October 3rd a visit was paid by Professor McFadyean to Althorp Park, Northamptonshire, to inspect a herd of Jerseys belonging to Lord Spencer. A few cases of tuberculosis had recently occurred in the herd, and, with a view to discovering which of the remaining animals were affected, they were tested with "tuberculin." The result indicated that every animal in the herd, with one doubtful exception, was the subject of tuberculosis. To test the accuracy of this indication a yearling heifer and a cow were killed, and the *post-mortem* revealed tuberculous disease in each. Since then twenty other animals, being all the remaining members of the herd, with the exception before mentioned, have been killed, and in every instance tuberculous lesions were discovered in some parts of the body.

(*b*) *Outbreak on Lord Cawdor's Estate in Pembrokeshire.*

On the 26th July last Professor Penberthy proceeded to Pembrokeshire in order to investigate an outbreak of disease among the cattle on a farm belonging to the Earl of Cawdor. From the tenant of the farm and from the Society's provincial veterinary surgeon it was ascertained that five or six young cattle had been lost from quarter-ill during the spring, and that between June 3rd and July 26th twenty-four other animals (cattle) had died from a disease of an

unusual type. Professor Penberthy, on the occasion of his visit, had the opportunity to make a *post-mortem* examination of a two-year-old steer which had died from this disease on the farm in question, and of several animals that died after a similar illness on other farms in Pembrokeshire. The *post-mortem* examination in these cases agreed with the description of the symptoms exhibited during life in indicating that the disease was neither anthrax nor quarter-ill, while microscopic examination and experiments went to prove that it was not infectious or transmissible by inoculation. Professor Penberthy came to the conclusion that these animals had died from vegetable poisoning, but the particular plant that was to blame for this was not discovered. Similar cases occurred about the same time in various parts of the country, and in several instances the owners of the animals had independently formed the opinion that the deaths were due to the animals having eaten bracken owing to the scarcity of grass. Experiments since made at the College with bracken gave negative results. Professor Penberthy advised removal of the surviving cattle from the pasture on which the deaths took place, and no similar cases have since occurred. At Professor Brown's request, Mr. Smart, veterinary surgeon of Birkenhead, visited a number of farms in Pembrokeshire on which cattle had died suddenly. In one of these cases the disease was ascertained to have been anthrax, but on the other farms the illness appears to have been of the same nature as that which prevailed on Lord Cawdor's farm. Cases apparently similar to the above occurred in numerous parts of the country during the summer months. In many cases the disease was supposed to be anthrax, and there is some reason to believe that such mistakes may have swelled the anthrax returns during the present year. There is no doubt that, owing to the scarcity of grass, cattle have eaten various injurious plants, which have flourished vigorously owing to the extreme heat.

The committee gave notice that at their next meeting they would ask for a grant of £600 for the coming year, of which £500 to be given to the Royal Veterinary College, and £100 to be reserved for general purposes.

ROYAL ACADEMY OF MEDICINE OF BELGIUM.

We have great pleasure in announcing that at the meeting of the Royal Academy of Medicine of Belgium, held on October 28th, Professor Degive, Director of the Belgian Veterinary School, was elected President for the ensuing year. We believe this is the first time such an honour has been conferred on a member of our profession, and while tendering our cordial felicitations to our talented colleague for the well-merited and high distinction of which he has been the recipient, we feel assured the veterinary profession will no less appreciate this honour which has been bestowed on one of its most accomplished members by one of the foremost medical corporations in Europe, which has always encouraged those of our profession who have laboured in promoting comparative pathology. Its list of members—honorary and titular—contains the names of several veterinary surgeons, one of whom is a member of the Royal College of Veterinary Surgeons. The United Kingdom does not offer such an example.

Notes and News.

A Veterinary Town Commissioner.—We are pleased to learn that on the election of Commissioners for the town of Lisburn, Ireland, Mr. Crighton, M.R.C.V.S., was elected, and stood third in the list of seven, the number required.

THE CONSTANTINOPLE VETERINARY SCHOOL.—The Ottoman Government has applied for two graduates of the French Veterinary Schools to become teachers in the Imperial School at Constantinople. They are to give instruction in the theory and practice of external and internal medicine, zootechny, anatomy, physiology, bacteriology, and shoeing.

FOUR CALVES AT A BIRTH.—Recently Mr. John Martin, Lauriston Place, who supplies a vast proportion of all the cows bought by the Edinburgh dairymen, sold a big Cumberland Shorthorn cow to Mr. Stenhouse, South Gyle, Corstorphine, says the *North British Agriculturist.* At the time the cow was sold, Mr. Martin felt pretty sure that she was carrying twins, but his judgment proved to be at fault, as the cow dropped four well-developed calves a day or two after. The calves did not long survive, but their very prolific dam is giving great satisfaction as a milker.

VETERINARY LEGISLATION IN CALIFORNIA.—In its last session, the Chamber of Representatives of the State of California, passed a law regulating the practice of veterinary medicine in that country. By that law, the Governor of the State is empowered to institute a commission composed of five veterinary surgeons, who will grant legal licenses to practice. Those veterinarians who have regularly graduated must show their diplomas, and those who have not graduated will have to undergo an examination before the commission, and obtain a majority of votes before they can practise. Everyone practising must have a license on and after January 1st, 1894.

A LAUDABLE STEP.—We are much gratified to note that a member of our profession, Mr. Peacock, has availed himself of the opportunities which presented themselves to prosecute his studies in the higher branch of medicine, and has succeeded in becoming an M.D., M.R.C.S., L.R.C.P., and L.S.A. of London. He was already a F.R.C.V.S. He is to be congratulated on his good fortune, which is due to his own merit and determination, and we wish him a full measure of success in his new career if he prefers to practise human medicine. It would be well if other members followed his example, as it would greatly assist in raising the position of veterinary medicine.

CONSUMPTION OF FLESH IN BERLIN.—According to some communications received from the director of the central cattle market and slaughter-house in Berlin, the quantity of meat consumed in that city during last year was about 111,607 tons, or equal to 140 lbs. per head. Of this quantity, five-sixths was slaughtered at the slaughter-house, the remainder being brought in from elsewhere. The cattle slaughtered numbered 134,000 head, 518,000 calves, 521,000 pigs, and 356,000 sheep. Besides these, about 8,000 horses were killed. The actual number of cattle brought to the market was 185,000. The total value of the animals admitted was about £6,000,000.

THE CATTLE PLAGUE IN RUSSIA.—Count Orloff Davydow has made a gift of 10,000 roubles to the Institute of Experimental Medicine of St. Petersburg, which is to be bestowed as a reward upon anyone who will discover a method of protecting animals against the cattle plague, or efficacious treatment of this terrible epizootic disease, from which Russia suffers more than all the other countries of Europe. Thus in the month of January of the present year, in European Russia alone and in the Caucasus it carried off 8,243 animals, exclusive of 1,938 slaughtered by the veterinary service to prevent the extension of the scourge in regions where it was still possible to contend with it.

CONTAGIOUS DISEASES IN RUSSIA.—The *Russian Archives of Veterinary Medicine* publishes the official sanitary reports on the health of animals for 1888, and though rather out of date, the figures showing the loss from contagious maladies are interesting and instructive. The losses from the principal scourges in European Russia for that year were as follows:—*Cattle Plague,* 80,251 cases, of which 38,232 died, and 42,019 were slaughtered (in 1884 there

were 919,550 ill, and 636,604 perished); *Glanders*, 1,877 cases; *Rabies*, 2,570 cases; *Contagious Pleuro-pneumonia*, 3,288 cases, and 18,833 died and were slaughtered. *Foot-and-mouth disease* in cattle, 326,258 cases, of which 1,450 succumbed; *Sheep-pox*, 27,421 cases, of which 1,450 died.

FOOT-AND-MOUTH DISEASE.—The active agent in the production of aphthous fever being as yet unknown, the Prussian Minister of Agriculture has offered a prize of 3,000 marks for its discovery. Not only must the competitors demonstrate it by the ordinary or new procedures, but they must also prove its activity by transmission experiments on animals. The discovery must likewise be supported by other necessary proofs, such as microscopical preparations, cultures, notes of experiments, etc. Before the prize is awarded, the candidate must give a demonstration of his experiments before a commission selected from the technical deputation of the veterinary service. The essays will be received up to June 30th, 1894, by the Minister of Agriculture, Berlin, and the result of the competition will be made known in January, 1895. The essays must be written legibly in German, and be under cover of an epigraph on a sealed envelope containing the name and address of the author.

SLAUGHTER OF ANIMALS IN GERMANY.—At the central abattoir of Hamburg, the number of animals slaughtered from September 9th to 16th, was 1,116 cattle (876 oxen, 75 heifers, 105 bulls, and 110 cows), 652 calves, 2,546 pigs (999 of which were examined for trichinosis), and 1,057 sheep. Animals condemned as unfit for food were: 2 oxen, 2 calves, 6 pigs, 2 sheep; organs and parts of 20 oxen and 10 pigs. From September 16th to 22nd were slaughtered 1,130 cattle (857 oxen, 71 heifers, 123 bulls, 79 cows), 575 calves, 2,540 pigs (of these 982 were examined for trichinosis), and 1,018 sheep. Animals condemned were: 10 oxen, 3 pigs, 1 sheep, with parts of 30 oxen and 9 pigs. From September 30th to October 6th were slaughtered 1,042 cattle (771 oxen, 69 heifers, 85 bulls, 114 cows), 547 calves, 2,474 pigs (975 of which were examined for trichinosis), and 1,058 sheep. Condemned: 12 oxen, 1 calf, 5 pigs, and parts of 46 oxen and 29 pigs. At Kiel there were slaughtered at the public slaughter-house during the month of August, 1893, 42 oxen, 280 heavy bulls, 563 cows, 47 fat heifers, 102 light bulls, 41 strong bulls under two years, 842 fat calves, 1,505 pigs, 213 sheep, 1,771 lambs, 126 calves, 40 horses, making a total of 5,571 animals. Of these, 4 cows and 2 pigs were tuberculose and 2 pigs trichinose. Of organs and parts of animals affected, there were 312 lungs of oxen and 26 livers; 122 pigs' lungs and 52 pigs' livers.

THE PASTEUR INSTITUTE.—The *Annales de l'Institut Pasteur*, recording the work done there during the months of August and September, state that the total number of persons under treatment there as a preventive against hydrophobia was 243, of whom 208 were French and 35 foreigners. Out of this total 19 had been bitten by animals which had been experimentally proved to be mad, 155 by animals declared by veterinary certificate to be mad, and 69 by animals only suspected to be so. The bites were inflicted in 215 cases by dogs, in 24 cases by cats, in three cases by cattle, and in one by a horse. Three deaths are reported as having occurred during the two months, the first being that of Auguste Morel, aged 18, a groom in Paris, who was bitten in three places on the right nostril, at the end of May, the wounds being very deep and only slightly cauterized. The dog which inflicted the bite also bit another dog, which was placed under observation at the Alfort Veterinary College and died of rabies at the end of July. Morel was under treatment at the Pasteur Institute from May 30, to June 16, but he did not complete his treatment, and it was reported officially that he had died on August 4, at a hospital at Château-Gonthier. The second death was that of Alfred Fagés, aged 40, a mason at Alias, in the department of the Gard, who had been bitten on July 12 by a stray cat. There were deep bites on the right hand, and here again

the wounds had been insufficiently cauterized. Treated at the Pasteur Institute from July 14, to July 28, Fagés felt pain in the right hand on August 15, and died on August 20, after exhibiting all the symptoms of hydrophobia. The third death was that of Jean Marie Montessuy, aged 57, a small farmer at St. Pierre-de-Rumilly, in the Haute-Savoie. Bitten on July 15 by a dog, ascertained to be mad, in 16 places, all of the wounds being deep, he was not cauterized, and underwent a course of inoculations at the Pasteur Institute from July 18 to August 6. Upon August 21, he felt twinges in the right thumb, and died on August 24, after having, as described by the local doctor, betrayed all the signs characteristic of hydrophobia. The same number of the *Annales* also contains a record of the work done at the Pasteur Institute in Moscow, where 907 persons were treated in the year 1892, of whom 613 were men and 294 women. Out of this total 178 had been bitten by animals experimentally proved to be mad, 439 by animals declared by veterinary certificate to be mad, and 290 by animals only suspected to be so, the bites having being inflicted in 769 cases by dogs, in 70 by cats, in 45 cases by wolves, in 11 by horses, in eight by cows, in two by pigs, and in two by human beings. Only six of the 907 persons had died, so that the mortality during the year was not more than ·66 per cent.

Correspondence.

CHLOROFORM IN VETERINARY PRACTICE.

SIR,—In your issue for November, I notice in the Presidential Address of the South Durham and North Yorkshire Veterinary Medical Association, some extraordinary statements with reference to the use of chloroform, and also some remarks on a letter which I wrote to the *Veterinary Record*, which is described as "a great reflection on the profession."

The statements with reference to the cases in which chloroform would be indicated must appear rather amusing to those who have experience in its use, and I think it will be admitted that these remarks will cast a far greater reflection on the profession, if they happen to be read by medical men or lay-readers, than those contained in my letter in the *Record*. We are told that "if you commence with an operation of the nature of which you know nothing, until you have cut down on, say, for instance, a tumour, and find that you have not all the instruments you require with you, and have to manufacture them out of anything you can lay hands on—knitting needles, kettle spouts, etc.; in that case it would be better if your animal were under chloroform."

Verily, this is veterinary surgery up to date! But I fail to see where the advantage of the chloroform comes in, more than in ordinary cases.

I was always under the impression that an important part of surgery was to have an intimate knowledge of the nature of the operation, and also to have proper instruments in readiness, so as to be prepared for any emergencies which might arise.

The remarks with reference to the use of chloroform in canine surgery are directly opposed to the facts proved by experience. It is stated "the majority of operations can be done before you would have time to give choloroform, and if howling be an indication of pain, you have most of that during the administration of the anæsthetic."

Now it is perfectly well known that there are many operations which have to be performed on dogs, which not only take a long time and careful dissection, but are also extremely painful; and to secure a dog and dissect away, regardless of his shrieks of pain, savours more of the relics of a barbarous age than of scientific surgery. With regard to the howling which may occur in the primary stage of the administration of an anæsthetic, I can positively

state that it does not occur in one case out of twenty, that is, if the administration is properly carried out, and a sufficient supply of air allowed.

The remaining remarks refer to the questions of time and money, arguments which do not hold good in veterinary surgery any more than they do in human surgery.

One remark, however, must be noticed, viz., "that until our clients can pay us better we need not bother to try and be too humane at the expense of our professional reputation."

This is surely not in keeping with the motto of *Humanitas, scientia, utilitas*, and all that can be hoped is that such sentiments are not possessed by many; for they certainly could not exist in the minds of those who appreciate in a proper manner their duty to the lower animals, and who are aware that these animals are creatures possessed of feeling, and not mere machines.

Yours etc.,

Cork, E. WALLIS HOARE, F.R.C.V.S.
November 13th, 1893.

A NEW SUTURE NEEDLE.

DEAR SIR,—I have great pleasure in forwarding you a description of a new suture needle. It was made for me by Messrs. Arnold and Sons twelve

months ago, and I have used it since with every satisfaction. It will be seen from the cut:—

(1) That it offers no rough edges when threaded on any part of its surface, so that it travels through the skin quite easily.

(2) That it is comparatively easy to thread, and affords no chance of the suturing material breaking off, and becoming fixed in the shaft of the needle.

(3) And that it entirely does away with the necessity for having a needle to fit *exactly* the suturing material used, as the needle will take material of varying thicknesses.

They may be obtained of different sizes from Messrs. Arnold and Sons, the makers.

H. CAULTON REEKS,
Student Royal Veterinary College.

"METHYLATED SPIRIT."

SIR,—Early in 1892 there was some discussion relative to the use of methylated spirit by veterinary surgeons. I, in common with others, thought the matter was settled and that we might use it if we complied with certain conditions, which conditions were stated in a letter in the *Veterinary Record* of February 28th, 1892. Yesterday I was surprised to receive a visit from two representatives of the Excise Department from Somerset House and our local excise officer. They questioned me as to the purposes for which I used methylated spirit, and I have been cautioned (if it ends there) that it is illegal to use methylated spirit at all, internally, and externally only in such embrocations and lotions as have been approved of (the formulæ having been submitted to them) by the Board of Inland Revenue.

Their authority is taken from the Spirits Act, 1880, 43 and 44 Vict., chap. 24, part II., section 130c, wherein it is stated that "any person using methylated spirit or any derivative thereof in the preparation of any article

capable of being used wholly or partially as a beverage or *internally as a medicine*, or sells, or has in his possession any such article in the preparation of which methylated spirits, or any derivative thereof, has been used, he shall for each offence incur a fine of £100, and the spirits with respect to which the offence is committed, shall be forfeited." Doubtless, a great many veterinary surgeons are aware of this, there are others who never use methylated spirit, but I think the majority use it for their tinctures, Spt. Æther Nit., and many other preparations in which the substitution of rectified for methylated spirit would be a serious item. I certainly do not think when the law was made "forbidding the use of methylated spirit *internally*," that it was intended to have any reference to medicines for animals. I pointed out to those gentlemen who called upon me the large doses that we have to give our patients compared to the doses for the human subject, and the low charges we country practitioners are obliged to make for medicines, also how great is the inconvenience of having to submit every prescription containing methylated spirit (however small in quantity) to the Board of Inland Revenue, before we are allowed to prepare it. I think we should have a test case to see if the Act ever was intended to apply to medicines for animals, and in the event of our losing the case, the subject should be brought before Parliament, and the expenses be defrayed by the members of the profession. Will the Defence Society protect any of its members who may be prosecuted in this matter?—Yours faithfully,

Darlington, Nov. 23rd. FREDK. STEVENS.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from Messrs. Arnold & Sons, London; H. W. Hooper, London; P. R. Gordon, Brisbane, Queensland; D. C. Pallin, Lucknow; Veterinary-Captain Burke, Madras; E. Wallis Hoare, Cork; A. W. Hill, London; F. C. Mahon, London; Veterinary-Captain J. A. Nunn, Lahore; G. Thatcher, London; H. C. Reeks, London; J. A. Robinson, Market Deeping; F. Stevens, Darlington.

BOOKS AND PAMPHLETS: Encyklopädie der Gesammten Thierheilkunde und Thierzucht (Lieferung 9, Band XI.); Comptes Rendus de l'Academie des Sciences de France; Bulletin des Séances de la Societé Nationale d'Agriculture de France; *W. Cooper and Nephews*, The World's Sheep Farming for Fifty Years; Bulletin et Mémoires de la Société Centrale de Médecine Vétérinaire; *L. Blanc*, Les Anomalies chez le Homme et les Mammifères; *L. Guinard*, Précis de Tératologie, Anomalies et Monstrosities chez l' Homme et chez les Animaux, *C. Cornevin et F. X. Lesbre*, Traité de l'Age des Animaux Domestiques; *M. Dupont*, L' Age du Cheval; *A. Lingard*, Report on Horse Surra; *Major-General W. H. Goodenough and Lieut.-Colonel Dalton*, The Army Book for the British Empire; Bulletin de la Société Royal Protectrice des Animaux Belge; Bulletin of the Johns Hopkins Hospital; Journal of the Royal United Service Institution.

JOURNALS, ETC.: *Archiv für Wissenschaftliche und Praktische Thierheilkunde; Agricultural Journal of the Cape Colony; Annales de Méd. Vétérinaire; Thierarzt; Recueil de Med. Vétérinaire; Lancet; British Medical Journal; Presse Vétérinaire; American Veterinary Review; Clinica Veterinaria; Live Stock Journal; Journal de Méd Veterinaire; Journal of Comparative Medicine and Veterinary Archives; Edinburgh Medical Journal; Modern Medicine and Bacteriological World; Gacetta Medicoveterinaria; Repertorium der Tierheilkunde; Echo Veterinaire; Mark Lane Express; Zeitschrift für Thierheilkunde und Viehzucht; Tijdschrift voor Vecartsengkunde en Veeteelt.*

NEWSPAPERS: *Lisburn Herald; Melbourne Argus; Hindu; Madras Times; Halifax Mercury; Surrey Advertiser.*

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